

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

### HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

### FEMA FLOOD ZONE

<u>Target Property County</u>	<u>FEMA Flood</u>
INGHAM, MI	<u>Electronic Data</u>
	YES - refer to the Overview Map and Detail Map
Flood Plain Panel at Target Property:	2600900010B
Additional Panels in search area:	2600900005B
	2600900009B
	2600900006B

### NATIONAL WETLAND INVENTORY

<u>NWI Quad at Target Property</u>	<u>NWI Electronic</u>
LANSING SOUTH	<u>Data Coverage</u>
	Not Available

### HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

#### *Site-Specific Hydrogeological Data\*:*

Search Radius:	1.25 miles
Status:	Not found

### AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

<u>MAP ID</u>	<u>LOCATION</u> <u>FROM TP</u>	<u>GENERAL DIRECTION</u> <u>GROUNDWATER FLOW</u>
2	1/4 - 1/2 Mile ENE	SE
3	1/4 - 1/2 Mile NE	ESE
A8	1/4 - 1/2 Mile NNE	SSW
23	1/2 - 1 Mile SE	NNE
F25	1/2 - 1 Mile NE	NE
27	1/2 - 1 Mile ESE	NE
30	1/2 - 1 Mile ENE	NE

\* ©1996 Site-specific hydrogeological data gathered by CERCLIS Alerts, Inc., Bainbridge Island, WA. All rights reserved. All of the information and opinions presented are those of the cited EPA report(s), which were completed under a Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) investigation.

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

<u>MAP ID</u>	<u>LOCATION FROM TP</u>	<u>GENERAL DIRECTION GROUNDWATER FLOW</u>
31	1/2 - 1 Mile SE	N
34	1/2 - 1 Mile NE	WSW

For additional site information, refer to Physical Setting Source Map Findings.

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

### GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

### GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

#### ROCK STRATIGRAPHIC UNIT

Era: Paleozoic  
System: Pennsylvanian  
Series: Atokan and Morrowan Series  
Code: PP1 *(decoded above as Era, System & Series)*

#### GEOLOGIC AGE IDENTIFICATION

Category: Stratified Sequence

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

### DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps. The following information is based on Soil Conservation Service STATSGO data.

Soil Component Name: URBANLAND

Soil Surface Texture: variable

Hydrologic Group: Not reported

Soil Drainage Class: Not reported

Hydric Status: Soil does not meet the requirements for a hydric soil.

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Bedrock Max: > 0 inches

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Permeability Rate (in/hr)	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	60 inches	variable	Not reported	Not reported	Max: 0.00 Min: 0.00	Max: 0.00 Min: 0.00

### OTHER SOIL TYPES IN AREA

Based on Soil Conservation Service STATSGO data, the following additional subordinant soil types may appear within the general area of target property.

Soil Surface Textures: sandy loam  
loamy sand  
silt loam  
muck

Surficial Soil Types: sandy loam  
loamy sand  
silt loam  
muck

Shallow Soil Types: loamy sand

Deeper Soil Types: fine sand  
stratified  
muck

### LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

### WELL SEARCH DISTANCE INFORMATION

<u>DATABASE</u>	<u>SEARCH DISTANCE (miles)</u>
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

### FEDERAL USGS WELL INFORMATION

<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
_____	_____	_____



## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

### FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
B6	USGS2318024	1/4 - 1/2 Mile South
B7	USGS2318025	1/4 - 1/2 Mile South
13	USGS2318026	1/4 - 1/2 Mile East
15	USGS2318036	1/4 - 1/2 Mile NE
C16	USGS2318187	1/4 - 1/2 Mile ENE
39	USGS2318043	1/2 - 1 Mile NW

### FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	MI6321594	1/8 - 1/4 Mile North

Note: PWS System location is not always the same as well location.

### STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A4	MI20101433	1/4 - 1/2 Mile NNE
A5	MI20095908	1/4 - 1/2 Mile NNE
9	MI20101435	1/4 - 1/2 Mile East
10	MI20101455	1/4 - 1/2 Mile SSE
12	MI20101436	1/4 - 1/2 Mile ESE
C14	MI20101439	1/4 - 1/2 Mile ENE
D19	MI20101458	1/2 - 1 Mile SE
D20	MI20101457	1/2 - 1 Mile SE
21	MI20101438	1/2 - 1 Mile ENE
E22	MI20101459	1/2 - 1 Mile SE
E24	MI20101456	1/2 - 1 Mile SE
F26	MI20101437	1/2 - 1 Mile NE
28	MI20101429	1/2 - 1 Mile East
29	MI20101428	1/2 - 1 Mile ENE
35	MI20101434	1/2 - 1 Mile NE
36	MI20101430	1/2 - 1 Mile East
37	MI20101469	1/2 - 1 Mile ESE
38	MI20101472	1/2 - 1 Mile ESE



## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID  
Direction  
Distance  
Elevation

Database EDR ID Number

**1**  
**North**  
**1/8 - 1/4 Mile**  
**Lower**

**FRDS PWS MI6321594**

PWS ID: MI6321594 PWS Status: Active  
Date Initiated: Not Reported Date Deactivated: Not Reported  
PWS Name: **Non-responsive**

Addressee / Facility: Not Reported

Facility Latitude: **Non-** Facility Longitude: **Non-**  
City Served: Not Reported  
Treatment Class: Untreated Population: 00000025

Violations information not reported.

### ENFORCEMENT INFORMATION:

System Name: M.D.O.T.- DAVISBURG/WELL #  
Violation Type: Monitoring, Routine Major (TCR)  
Contaminant: COLIFORM (TCR)  
Compliance Period: 1995-10-01 - 1995-12-31  
Violation ID: 9610010  
Enforcement Date: 1996-01-31 Enf. Action: State Violation/Reminder Notice

System Name: M.D.O.T.- DAVISBURG/WELL #  
Violation Type: Monitoring, Regular  
Contaminant: NITRATE  
Compliance Period: 1995-01-01 - 1995-12-31  
Violation ID: 9610020  
Enforcement Date: 1996-01-31 Enf. Action: State Violation/Reminder Notice

**2**  
**ENE**  
**1/4 - 1/2 Mile**  
**Lower**

Site ID: 330085  
Groundwater Flow: SE  
Shallowest Water Table Depth: Not Reported  
Deepest Water Table Depth: Not Reported  
Average Water Table Depth: Not Reported  
Date: 02/14/1995

**AQUIFLOW 34741**

**3**  
**NE**  
**1/4 - 1/2 Mile**  
**Lower**

Site ID: 330472  
Groundwater Flow: ESE  
Shallowest Water Table Depth: 14  
Deepest Water Table Depth: 17  
Average Water Table Depth: Not Reported  
Date: 08/10/1994

**AQUIFLOW 34732**

**A4**  
**NNE**  
**1/4 - 1/2 Mile**  
**Lower**

**MI WELLS MI20101433**

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Wellid:	33000006270	Import id:	33040216004
County:	Ingham	Township:	Lansing
Town range:	04N 02W	Section:	16
Owner name:	Non-responsive		
Well addr:			
Well depth:	407		
Well type:	*OTH		
Wssn:	0		
Well num:	Not Reported	Driller id:	0
Const date:	Not Reported	Case type:	*U
Case dia:	8		
Case depth:	0		
Screen frm:	0		
Screen to:	0		
Swl:	999.99		
Test depth:	65		
Test hours:	0		
Test rate:	300	Test methd:	*U
Grout:	1	Pmp cpcity:	0
Latitude:	Non-responsive		
Longitude:			
Methd coll:	I1		
Elevation:	849		
Elev methd:	T1	Depth flag:	Not Reported
Elev flag:	Not Reported	Swl flag:	2
Elev dem:	846	Elev dif:	3
Elev miv:	849	Aq code:	R
Aq flag:	Not Reported	Pct aq:	64
Pct aq d:	100	Pct aq r:	59
Pct maq:	21	Pct maq d:	0
Pct maq r:	24	Pct cm:	15
Pct cm d:	0	Pct cm r:	17
Pct pcm:	0	Pct pcm d:	0
Pct pcm r:	0	Pct na:	0
Pct na d:	0	Pct na r:	0
Pct flag:	Not Reported	Rock top:	45
D r type:	AA	Spc cpcity:	0
A thicknes:	0	A pct aq:	0
A pct maq:	0	A pct pcm:	0
A pct cm:	0	A pct na:	0
A thickns2:	0	A pct aq2:	0
A pct maq2:	0	A pct pcm2:	0
A pct cm2:	0	A pct na2:	0
A hit swl:	F	A hit top:	T
A hit rock:	F	A sc lith1:	Not Reported
A sc lmod1:	Not Reported	A sc lmaq1:	Not Reported
A sc lpct1:	0	A sc lith2:	Not Reported
A sc lmod2:	Not Reported	A sc lmaq2:	Not Reported
A sc lpct2:	0	Pct aq 1:	100
Pct maq 1:	0	Pct cm 1:	0
Pct pcm 1:	0	Pct na 1:	0
Pct aq 2:	100	Pct maq 2:	0
Pct cm 2:	0	Pct pcm 2:	0
Pct na 2:	0	Pct aq 3:	0
Pct maq 3:	0	Pct cm 3:	0
Pct pcm 3:	0	Pct na 3:	0
Pct aq 4:	0	Pct maq 4:	0
Pct cm 4:	0	Pct pcm 4:	0
Pct na 4:	0	Pct aq 5:	0
Pct maq 5:	0	Pct cm 5:	0
Pct pcm 5:	0	Pct na 5:	0

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Pct aq 6:	0	Pct maq 6:	0
Pct cm 6:	0	Pct pcm 6:	0
Pct na 6:	0	Pct aq 7:	0
Pct maq 7:	0	Pct cm 7:	0
Pct pcm 7:	0	Pct na 7:	0
Pct aq 8:	0	Pct maq 8:	0
Pct cm 8:	0	Pct pcm 8:	0
Pct na 8:	0	Pct aq 9:	0
Pct maq 9:	0	Pct cm 9:	0
Pct pcm 9:	0	Pct na 9:	0
Pct aq 10:	0	Pct maq 10:	0
Pct cm 10:	0	Pct pcm 10:	0
Pct na 10:	0	Pct aq 11:	0
Pct maq 11:	0	Pct cm 11:	0
Pct pcm 11:	0	Pct na 11:	0
Pct aq 12:	0	Pct maq 12:	0
Pct cm 12:	0	Pct pcm 12:	0
Pct na 12:	0	Pct aq 13:	0
Pct maq 13:	0	Pct cm 13:	0
Pct pcm 13:	0	Pct na 13:	0
Within sec:	Y	Loc match:	Y
Aq code 1:	R		
Hit swl:	F		
Athk2:	0		
Hcond2:	50		
Vcond2:	50		
T2:	1250		
D50plek:	53.73235		

**A5**  
**NNE**  
**1/4 - 1/2 Mile**  
**Lower**

**MI WELLS      MI20095908**

Wellid:	33000000004	Import id:	33040216003
County:	Ingham	Township:	Lansing
Town range:	04N 02W	Section:	16
Owner name:	Non-responsive		
Well addr:			
Well depth:	400		
Well type:	INDUS		
Wssn:	0		
Well num:	Not Reported	Driller id:	0
Const date:	Not Reported	Case type:	*U
Case dia:	16		
Case depth:	52		
Screen frm:	0		
Screen to:	0		
Swl:	200		
Test depth:	0		
Test hours:	0		
Test rate:	0	Test methd:	*U
Grout:	1	Pmp cpcity:	0
Latitude:	Non-responsive		
Longitude:			

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Methd coll:	I1	Depth flag:	Not Reported
Elevation:	849	Swl flag:	Not Reported
Elev methd:	T1	Elev dif:	3
Elev flag:	Not Reported	Aq code:	R
Elev dem:	846	Pct aq:	47
Elev miv:	849	Pct aq r:	49
Aq flag:	Not Reported	Pct maq d:	0
Pct aq d:	35	Pct cm:	34
Pct maq:	11	Pct cm r:	39
Pct maq r:	13	Pct pcm d:	65
Pct cm d:	0	Pct na:	0
Pct pcm:	8	Pct na r:	0
Pct pcm r:	0	Rock top:	46
Pct na d:	0	Spc cpcity:	0
Pct flag:	Not Reported	A pct aq:	0
D r type:	Not Reported	A pct pcm:	0
A thicknes:	0	A pct na:	0
A pct maq:	0	A pct aq2:	0
A pct cm:	0	A pct pcm2:	0
A thickns2:	0	A pct na2:	0
A pct maq2:	0	A hit top:	T
A pct cm2:	0	A sc lith1:	Not Reported
A hit swl:	F	A sc lmaq1:	Not Reported
A hit rock:	F	A sc lith2:	Not Reported
A sc lmod1:	Not Reported	A sc lmaq2:	Not Reported
A sc lpct1:	0	Pct aq 1:	80
A sc lmod2:	Not Reported	Pct cm 1:	0
A sc lpct2:	0	Pct na 1:	0
Pct maq 1:	0	Pct maq 2:	0
Pct pcm 1:	20	Pct pcm 2:	100
Pct aq 2:	0	Pct aq 3:	0
Pct cm 2:	0	Pct cm 3:	0
Pct na 2:	0	Pct na 3:	0
Pct maq 3:	0	Pct maq 4:	0
Pct pcm 3:	0	Pct pcm 4:	0
Pct aq 4:	0	Pct aq 5:	0
Pct cm 4:	0	Pct cm 5:	0
Pct na 4:	0	Pct na 5:	0
Pct maq 5:	0	Pct maq 6:	0
Pct pcm 5:	0	Pct pcm 6:	0
Pct aq 6:	0	Pct aq 7:	0
Pct cm 6:	0	Pct cm 7:	0
Pct na 6:	0	Pct na 7:	0
Pct maq 7:	0	Pct maq 8:	0
Pct pcm 7:	0	Pct pcm 8:	0
Pct aq 8:	0	Pct aq 9:	0
Pct cm 8:	0	Pct cm 9:	0
Pct na 8:	0	Pct na 9:	0
Pct maq 9:	0	Pct maq 10:	0
Pct pcm 9:	0	Pct pcm 10:	0
Pct aq 10:	0	Pct aq 11:	0
Pct cm 10:	0	Pct cm 11:	0
Pct na 10:	0	Pct na 11:	0
Pct maq 11:	0	Pct maq 12:	0
Pct pcm 11:	0	Pct pcm 12:	0
Pct aq 12:	0	Pct aq 13:	0
Pct cm 12:	0	Pct cm 13:	0
Pct na 12:	0	Pct na 13:	0
Pct maq 13:	0		
Pct pcm 13:	0		

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Within sec:	Y	Loc match:	Y
Aq code 1:	R		
Hit swl:	F		
Athk2:	0		
Hcond2:	.01		
Vcond2:	.01		
T2:	.26		
D50plek:	.021		

**B6**  
**South**  
**1/4 - 1/2 Mile**  
**Lower**

**FED USGS USGS2318024**

Agency cd:	USGS	Site no:	424324084331801
Site name:	04N 02W 21BADB 01		
Latitude:	Non-responsive		
Longitude:	Non-responsive	Dec lat:	Non-responsive
Dec lon:		Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	26
State:	26	County:	065
Country:	US	Land net:	04N 02W 21BADB 01
Location map:	LANSING SOUTH	Map scale:	24000
Altitude:	835		
Altitude method:	Reported		
Altitude accuracy:	10		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	Upper Grand. Michigan. Area = 1730 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	19711028
Date inventoried:	Not Reported	Mean greenwich time offset:	EST
Local standard time flag:	Y		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	400	Hole depth:	400
Source of depth data:	Not Reported		
Project number:	442600200		
Real time data flag:	0	Daily flow data begin date:	0000-00-00
Daily flow data end date:	0000-00-00	Daily flow data count:	0
Peak flow data begin date:	0000-00-00	Peak flow data end date:	0000-00-00
Peak flow data count:	0	Water quality data begin date:	0000-00-00
Water quality data end date:	0000-00-00	Water quality data count:	0
Ground water data begin date:	1971-10-28	Ground water data end date:	1971-10-28
Ground water data count:	1		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1971-10-28	73.00	

**B7**  
**South**  
**1/4 - 1/2 Mile**  
**Lower**

**FED USGS USGS2318025**

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Agency cd:	USGS	Site no:	424324084331802
Site name:	04N 02W 21BA 01 INGHAM CO (TOWNSEND)		
Latitude:	Non-responsive	Dec lat:	Non-responsive
Longitude:		Coor meth:	M
Dec lon:		Latlong datum:	NAD27
Coor accr:	S	District:	26
Dec latlong datum:	NAD83	County:	065
State:	26	Land net:	04N 02W 21 BA01
Country:	US	Map scale:	24000
Location map:	LANSING SOUTH		
Altitude:	834.10		
Altitude method:	Level or other surveying method		
Altitude accuracy:	.01		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	Upper Grand. Michigan. Area = 1730 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	Not Reported
Date inventoried:	Not Reported	Mean greenwich time offset:	EST
Local standard time flag:	N		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Confined single aquifer		
Aquifer:	SAGINAW FORMATION		
Well depth:	410	Hole depth:	Not Reported
Source of depth data:	Not Reported		
Project number:	442600200		
Real time data flag:	0	Daily flow data begin date:	0000-00-00
Daily flow data end date:	0000-00-00	Daily flow data count:	0
Peak flow data begin date:	0000-00-00	Peak flow data end date:	0000-00-00
Peak flow data count:	0	Water quality data begin date:	0000-00-00
Water quality data end date:	0000-00-00	Water quality data count:	0
Ground water data begin date:	1929-12-00	Ground water data end date:	1960-07-27
Ground water data count:	354		

Ground-water levels, Number of Measurements: 354

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1960-07-27	68.60		1960-06-28	67.56	
1960-04-19	67.32		1959-12-29	65.23	
1959-12-21	66.45		1959-11-27	66.67	
1959-10-16	70.08		1959-09-25	72.00	
1959-08-21	74.33		1959-07-23	70.17	
1959-06-30	69.42		1959-06-19	69.00	
1959-05-15	67.98		1959-04-17	66.67	
1959-03-31	65.80		1959-03-20	66.67	
1959-01	66.70		1958-12-30	66.11	
1958-09-26	63.64		1958-07-09	63.45	
1958-04-12	57.38		1957-12-23	63.05	
1957-10-24	63.06		1957-07-30	63.64	
1957-04-22	61.50		1956-12-21	59.66	
1956-09-25	60.02		1956-07-11	61.13	
1956-04-11	61.26		1955-12-29	50.7	
1955-12-12	50.95		1955-11-30	50.0	
1955-11-01	59.2		1955-10-05	60.0	
1955-09-14	52.8		1955-09-02	53.40	
1955-07-31	55.4		1955-07-05	53.3	
1955-06-17	51.84		1955-06-01	52.3	
1955-05-02	51.2		1955-04-01	50.1	
1955-03-29	49.56		1955-03-01	49.7	



## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Ground-water levels, continued.

Date	Feet below Surface	Feet to Sealevel
1955-01-31	48.9	
1954-09-01	51.24	
1953-12-29	50.00	
1953-10-30	50.29	
1953-08-28	52.25	
1953-07-31	52.25	
1953-05-29	50.33	
1953-04-30	50.50	
1953-03-27	49.17	
1953-01-31	47.19	
1952-12-22	45.73	
1952-10-25	47.55	
1952-08-26	46.68	
1952-06-25	46.80	
1952-04-26	44.15	
1952-03-01	44.35	
1951-12-31	39.93	
1951-10-26	46.47	
1951-08-27	45.12	
1951-06-25	44.98	
1951-04-28	42.80	
1951-02-27	42.85	
1950-12-26	42.58	
1950-10-26	45.95	
1950-08-30	47.01	
1950-06-29	45.65	
1950-04-26	39.76	
1950-02-23	40.96	
1949-12-29	38.44	
1949-10-27	39.92	
1949-08-25	43.09	
1949-06-24	42.53	
1949-04-25	36.97	
1949-02-28	37.27	
1948-12-27	36.78	
1948-11-18	39.04	
1948-11-04	39.82	
1948-10-21	40.01	
1948-10-07	40.27	
1948-09-23	41.21	
1948-09-09	41.33	
1948-08-19	41.60	
1948-08-05	41.12	
1948-07-22	40.48	
1948-07-08	39.28	
1948-06-25	37.84	
1948-06-10	37.74	
1948-05-27	35.69	
1948-05-07	35.24	
1948-04-23	34.86	
1948-04-09	34.69	
1948-03-25	34.78	
1948-02-27	35.19	
1948-02-12	36.03	
1948-01-23	34.49	

Date	Feet below Surface	Feet to Sealevel
1954-12-21	48.87	
1954-05-24	49.40	
1953-11-24	49.20	
1953-09-30	50.83	
1953-08-10	51.39	
1953-07-01	52.03	
1953-05-01	49.29	
1953-03-28	48.50	
1953-02-28	48.75	
1953-01-26	43.0	
1952-11-24	44.97	
1952-09-27	47.07	
1952-07-30	46.20	
1952-06-02	44.26	
1952-03-29	44.68	
1952-01-30	43.25	
1951-12-02	44.48	
1951-09-27	45.78	
1951-07-30	45.04	
1951-05-20	44.02	
1951-03-31	42.73	
1951-01-27	43.09	
1950-11-28	44.49	
1950-09-27	45.88	
1950-07-27	46.22	
1950-05-31	41.91	
1950-03-29	41.48	
1950-01-27	40.72	
1949-11-29	38.44	
1949-09-29	40.68	
1949-07-28	44.27	
1949-05-27	38.33	
1949-03-28	36.54	
1949-01-24	38.08	
1948-11-29	37.92	
1948-11-12	39.23	
1948-10-28	39.97	
1948-10-14	40.28	
1948-09-30	41.18	
1948-09-16	40.96	
1948-08-26	42.70	
1948-08-12	41.85	
1948-07-29	40.59	
1948-07-15	40.02	
1948-07-01	38.69	
1948-06-18	37.96	
1948-06-03	36.71	
1948-05-21	35.24	
1948-04-30	34.87	
1948-04-16	34.79	
1948-04-02	34.82	
1948-03-18	35.31	
1948-02-20	35.57	
1948-01-26	34.63	
1948-01-15	36.79	

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Ground-water levels, continued.

Date	Feet below Surface	Feet to Sealevel
1948-01-08	37.79	
1947-12-17	35.74	
1947-12-04	35.76	
1947-11-20	36.11	
1947-11-06	38.95	
1947-10-16	37.73	
1947-09-26	37.42	
1947-08-25	38.04	
1947-08-08	37.71	
1947-07-14	35.71	
1947-06-13	34.46	
1947-05-30	33.70	
1947-05-15	33.55	
1947-05-01	33.99	
1947-04-19	33.56	
1947-03-22	36.69	
1947-03-08	36.67	
1947-02-22	35.90	
1947-02-08	35.63	
1947-01-25	35.70	
1947-01-11	35.61	
1946-12-30	35.33	
1946-12-14	35.88	
1946-11-30	35.62	
1946-11-16	36.25	
1946-11-02	36.46	
1946-10-19	36.44	
1946-10-05	36.83	
1946-09-21	36.56	
1946-09-07	35.71	
1946-06-15	32.96	
1946-05-25	31.46	
1946-04-27	31.20	
1945-08-28	33.53	
1945-06-26	34.94	
1945-04-27	35.13	
1945-02-22	35.63	
1944-12-19	34.95	
1944-10-26	35.25	
1943-12-23	33.13	
1943-10-27	31.20	
1943-08-25	31.78	
1943-06-18	31.83	
1943-04-23	29.78	
1943-02-26	30.20	
1942-11-27	29.27	
1942-09-18	31.12	
1942-07-28	30.47	
1942-05-28	30.02	
1942-02-28	26.42	
1941-12-29	32.67	
1941-10-24	32.72	
1941-08-22	32.97	
1941-06-24	32.87	
1941-04-22	30.37	

Date	Feet below Surface	Feet to Sealevel
1947-12-31	33.18	
1947-12-09	35.05	
1947-11-25	35.24	
1947-11-13	39.13	
1947-10-30	37.83	
1947-10-08	37.89	
1947-09-10	38.25	
1947-08-18	37.87	
1947-07-28	35.93	
1947-06-25	35.59	
1947-06-07	33.60	
1947-05-22	33.69	
1947-05-08	33.25	
1947-04-26	33.95	
1947-04-12	37.35	
1947-03-15	36.47	
1947-03-01	36.48	
1947-02-15	35.77	
1947-02-01	35.63	
1947-01-18	36.00	
1947-01-04	35.48	
1946-12-21	36.27	
1946-12-07	36.02	
1946-11-23	36.49	
1946-11-09	36.49	
1946-10-26	36.66	
1946-10-12	36.70	
1946-09-28	36.83	
1946-09-14	35.68	
1946-08-31	35.27	
1946-05-31	30.62	
1946-05-11	32.19	
1945-09-29	32.25	
1945-08-01	37.09	
1945-05-21	33.38	
1945-04-03	35.30	
1945-01-12	35.24	
1944-11-17	35.60	
1944-09-18	35.85	
1943-11-25	31.12	
1943-09-29	31.52	
1943-07-30	31.83	
1943-05-28	29.28	
1943-03-25	29.03	
1942-12-29	28.43	
1942-10-29	29.77	
1942-08-26	29.72	
1942-06-25	28.97	
1942-03-30	25.62	
1942-01-28	28.47	
1941-11-14	32.52	
1941-09-24	32.12	
1941-07-24	34.12	
1941-05-20	31.77	
1941-03-26	31.12	

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Ground-water levels, continued.

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1941-02-25	30.27		1941-01-14	29.22	
1940-12-13	29.37		1940-11-26	29.12	
1940-10-17	30.72		1940-09-19	30.72	
1940-08-21	31.02		1940-07-29	30.72	
1940-06-25	30.22		1940-05-22	30.47	
1940-04-25	30.52		1940-03-20	29.12	
1940-02-23	28.97		1940-01-23	28.37	
1939-12-18	26.22		1939-11-17	26.72	
1939-10-18	26.12		1939-09-15	27.62	
1939-08-10	26.87		1939-07-27	28.47	
1939-06-21	26.12		1939-05-24	27.27	
1939-04-27	26.22		1939-03-23	26.27	
1939-02-14	26.52		1939-01-18	26.62	
1938-12-16	27.27		1938-11-16	27.72	
1938-10-25	28.27		1938-09-20	28.02	
1938-08-17	27.97		1938-07-19	26.72	
1938-06-20	25.97		1938-05-24	26.37	
1938-04-29	26.27		1938-03-22	23.37	
1938-02-21	23.52		1938-01-18	25.47	
1937-12-28	25.52		1937-11-10	27.27	
1937-10-22	25.92		1937-09-23	25.62	
1937-08-19	25.97		1937-07-21	24.97	
1937-06-22	24.62		1937-05-22	24.62	
1937-04-13	24.57		1937-03-15	24.42	
1937-02-24	25.17		1937-01-26	23.87	
1936-12-23	25.72		1936-11-11	25.22	
1936-10-22	24.97		1936-10-02	25.47	
1936-08-21	26.87		1936-07-24	29.97	
1936-06-25	28.07		1936-05-22	28.17	
1936-04-29	29.72		1936-03-31	28.07	
1936-02-26	27.72		1936-01-24	27.17	
1935-12-28	26.17		1935-11-27	26.87	
1935-05-10	24.57		1935-03-28	25.32	
1935-02-28	25.82		1935-01-31	28.42	
1934-12-28	24.97		1934-11-28	24.72	
1934-10-30	23.17		1934-01-30	21.27	
1933-12-28	21.32		1933-11-23	22.22	
1933-10-26	21.92		1933-04-29	18.47	
1933-03-31	18.97		1933-02-28	19.27	
1933-01-16	19.62		1932-12-28	19.67	
1932-04-26	28.87		1931-03-26	25.57	
1931-02-16	25.57		1930-06	19.07	
1930-05	18.12		1930-04	17.82	
1930-03	21.77		1930-02	18.82	
1930-01	19.42		1929-12	18.17	

**A8**  
**NNE**  
**1/4 - 1/2 Mile**  
**Lower**

Site ID: 330449  
Groundwater Flow: SSW  
Shallowest Water Table Depth: Not Reported  
Deepest Water Table Depth: Not Reported  
Average Water Table Depth: 15  
Date: 12/1992

**AQUIFLOW 34840**

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID  
Direction  
Distance  
Elevation

Database EDR ID Number

9

East  
1/4 - 1/2 Mile  
Lower

MI WELLS MI20101435

Wellid:	33000006272	Import id:	33040216302
County:	Ingham	Township:	Lansing
Town range:	04N 02W	Section:	16
Owner name:	Non-responsive		
Well addr:	BWL WELL 45-01		
Well depth:	410		
Well type:	TY1PU		
Wssn:	3760		
Well num:	BWL WELL 45-01	Driller id:	729
Const date:	1954-09-28 00:00:00.000	Case type:	*U
Case dia:	0		
Case depth:	0		
Screen frm:	0		
Screen to:	0		
Swl:	24.5		
Test depth:	0		
Test hours:	0		
Test rate:	0	Test methd:	*U
Grout:	1	Pmp cpcity:	0
Latitude:	Non-responsive		
Longitude:	Non-responsive		
Methd coll:	I1		
Elevation:	822		
Elev methd:	T1	Depth flag:	Not Reported
Elev flag:	Not Reported	Swl flag:	Not Reported
Elev dem:	820	Elev dif:	2
Elev miv:	822	Aq code:	R
Aq flag:	Not Reported	Pct aq:	65
Pct aq d:	86	Pct aq r:	63
Pct maq:	10	Pct maq d:	0
Pct maq r:	10	Pct cm:	21
Pct cm d:	0	Pct cm r:	23
Pct pcm:	2	Pct pcm d:	0
Pct pcm r:	2	Pct na:	2
Pct na d:	14	Pct na r:	1
Pct flag:	Not Reported	Rock top:	35
D r type:	Not Reported	Spc cpcity:	0
A thicknes:	0	A pct aq:	0
A pct maq:	0	A pct pcm:	0
A pct cm:	0	A pct na:	0
A thickns2:	0	A pct aq2:	0
A pct maq2:	0	A pct pcm2:	0
A pct cm2:	0	A pct na2:	0
A hit swl:	F	A hit top:	T
A hit rock:	F	A sc lith1:	Not Reported
A sc lmod1:	Not Reported	A sc lmaq1:	Not Reported
A sc lpct1:	0	A sc lith2:	Not Reported
A sc lmod2:	Not Reported	A sc lmaq2:	Not Reported
A sc lpct2:	0	Pct aq 1:	75
Pct maq 1:	0	Pct cm 1:	0
Pct pcm 1:	0	Pct na 1:	25

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Pct aq 2:	0	Pct maq 2:	0
Pct cm 2:	0	Pct pcm 2:	0
Pct na 2:	0	Pct aq 3:	0
Pct maq 3:	0	Pct cm 3:	0
Pct pcm 3:	0	Pct na 3:	0
Pct aq 4:	0	Pct maq 4:	0
Pct cm 4:	0	Pct pcm 4:	0
Pct na 4:	0	Pct aq 5:	0
Pct maq 5:	0	Pct cm 5:	0
Pct pcm 5:	0	Pct na 5:	0
Pct aq 6:	0	Pct maq 6:	0
Pct cm 6:	0	Pct pcm 6:	0
Pct na 6:	0	Pct aq 7:	0
Pct maq 7:	0	Pct cm 7:	0
Pct pcm 7:	0	Pct na 7:	0
Pct aq 8:	0	Pct maq 8:	0
Pct cm 8:	0	Pct pcm 8:	0
Pct na 8:	0	Pct aq 9:	0
Pct maq 9:	0	Pct cm 9:	0
Pct pcm 9:	0	Pct na 9:	0
Pct aq 10:	0	Pct maq 10:	0
Pct cm 10:	0	Pct pcm 10:	0
Pct na 10:	0	Pct aq 11:	0
Pct maq 11:	0	Pct cm 11:	0
Pct pcm 11:	0	Pct na 11:	0
Pct aq 12:	0	Pct maq 12:	0
Pct cm 12:	0	Pct pcm 12:	0
Pct na 12:	0	Pct aq 13:	0
Pct maq 13:	0	Pct cm 13:	0
Pct pcm 13:	0	Pct na 13:	0
Within sec:	Y	Loc match:	Y
Aq code 1:	R		
Hit swl:	F		
Athk2:	0		
Hcond2:	100		
Vcond2:	100		
T2:	1500		
D50plek:	38.31925		

10  
SSE  
1/4 - 1/2 Mile  
Lower

MI WELLS MI20101455

Wellid:	33000006313	Import id:	33040221001
County:	Ingham	Township:	Lansing
Town range:	04N 02W	Section:	21
Owner name:	Non-responsive		
Well addr:	Not Reported		
Well depth:	40		
Well type:	*OTH		
Wssn:	0		
Well num:	Not Reported	Driller id:	550
Const date:	1967-08-24 00:00:00.000	Case type:	*U
Case dia:	0		

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Case depth:	0		
Screen frm:	0		
Screen to:	0		
Swl:	15		
Test depth:	36		
Test hours:	0		
Test rate:	411	Test methd:	*U
Grout:	1	Pmp cpcity:	0
Latitude:	Non-responsive		
Longitude:			
Methd coll:	I1		
Elevation:	832		
Elev methd:	T1	Depth flag:	Not Reported
Elev flag:	Not Reported	Swl flag:	Not Reported
Elev dem:	827	Elev dif:	5
Elev miv:	832	Aq code:	D
Aq flag:	Not Reported	Pct aq:	23
Pct aq d:	23	Pct aq r:	0
Pct maq:	0	Pct maq d:	0
Pct maq r:	0	Pct cm:	38
Pct cm d:	38	Pct cm r:	0
Pct pcm:	38	Pct pcm d:	38
Pct pcm r:	0	Pct na:	3
Pct na d:	3	Pct na r:	0
Pct flag:	Not Reported	Rock top:	-1
D r type:	Not Reported	Spc cpcity:	0
A thicknes:	0	A pct aq:	0
A pct maq:	0	A pct pcm:	0
A pct cm:	0	A pct na:	0
A thickns2:	0	A pct aq2:	0
A pct maq2:	0	A pct pcm2:	0
A pct cm2:	0	A pct na2:	0
A hit swl:	F	A hit top:	T
A hit rock:	F	A sc lith1:	Not Reported
A sc lmod1:	Not Reported	A sc lmaq1:	Not Reported
A sc lpct1:	0	A sc lith2:	Not Reported
A sc lmod2:	Not Reported	A sc lmaq2:	Not Reported
A sc lpct2:	0	Pct aq 1:	0
Pct maq 1:	0	Pct cm 1:	75
Pct pcm 1:	20	Pct na 1:	5
Pct aq 2:	45	Pct maq 2:	0
Pct cm 2:	0	Pct pcm 2:	55
Pct na 2:	0	Pct aq 3:	0
Pct maq 3:	0	Pct cm 3:	0
Pct pcm 3:	0	Pct na 3:	0
Pct aq 4:	0	Pct maq 4:	0
Pct cm 4:	0	Pct pcm 4:	0
Pct na 4:	0	Pct aq 5:	0
Pct maq 5:	0	Pct cm 5:	0
Pct pcm 5:	0	Pct na 5:	0
Pct aq 6:	0	Pct maq 6:	0
Pct cm 6:	0	Pct pcm 6:	0
Pct na 6:	0	Pct aq 7:	0
Pct maq 7:	0	Pct cm 7:	0
Pct pcm 7:	0	Pct na 7:	0
Pct aq 8:	0	Pct maq 8:	0
Pct cm 8:	0	Pct pcm 8:	0
Pct na 8:	0	Pct aq 9:	0
Pct maq 9:	0	Pct cm 9:	0
Pct pcm 9:	0	Pct na 9:	0

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Pct aq 10:	0	Pct maq 10:	0
Pct cm 10:	0	Pct pcm 10:	0
Pct na 10:	0	Pct aq 11:	0
Pct maq 11:	0	Pct cm 11:	0
Pct pcm 11:	0	Pct na 11:	0
Pct aq 12:	0	Pct maq 12:	0
Pct cm 12:	0	Pct pcm 12:	0
Pct na 12:	0	Pct aq 13:	0
Pct maq 13:	0	Pct cm 13:	0
Pct pcm 13:	0	Pct na 13:	0
Within sec:	Y	Loc match:	Y
Aq code 1:	Not Reported		
Hit swl:	Not Reported		
Athk2:	0		
Hcond2:	0		
Vcond2:	0		
T2:	0		
D50plek:	0		

12  
ESE  
1/4 - 1/2 Mile  
Lower

MI WELLS MI20101436

Wellid:	33000006273	Import id:	33040216303
County:	Ingham	Township:	Lansing
Town range:	04N 02W	Section:	16
Owner name:	Non-responsive		
Well addr:	BWL WELL 45-02		
Well depth:	400		
Well type:	TY1PU		
Wssn:	3760		
Well num:	BWL WELL 45-02	Driller id:	729
Const date:	1954-08-20 00:00:00.000	Case type:	*U
Case dia:	0		
Case depth:	0		
Screen frm:	0		
Screen to:	0		
Swl:	12.25		
Test depth:	0		
Test hours:	0		
Test rate:	0	Test methd:	*U
Grout:	1	Pmp cpcity:	0
Latitude:	Non-responsive		
Longitude:			
Methd coll:	I1		
Elevation:	823		
Elev methd:	T1	Depth flag:	Not Reported
Elev flag:	Not Reported	Swl flag:	Not Reported
Elev dem:	820	Elev dif:	3
Elev miv:	823	Aq code:	Not Reported
Aq flag:	L	Pct aq:	0
Pct aq d:	0	Pct aq r:	0
Pct maq:	0	Pct maq d:	0
Pct maq r:	0	Pct cm:	0

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Pct cm d:	0	Pct cm r:	0
Pct pcm:	0	Pct pcm d:	0
Pct pcm r:	0	Pct na:	0
Pct na d:	0	Pct na r:	0
Pct flag:	Not Reported	Rock top:	-9
D r type:	Not Reported	Spc cpcity:	0
A thicknes:	0	A pct aq:	0
A pct maq:	0	A pct pcm:	0
A pct cm:	0	A pct na:	0
A thickns2:	0	A pct aq2:	0
A pct maq2:	0	A pct pcm2:	0
A pct cm2:	0	A pct na2:	0
A hit swl:	F	A hit top:	T
A hit rock:	F	A sc lith1:	Not Reported
A sc lmod1:	Not Reported	A sc lmaq1:	Not Reported
A sc lpct1:	0	A sc lith2:	Not Reported
A sc lmod2:	Not Reported	A sc lmaq2:	Not Reported
A sc lpct2:	0	Pct aq 1:	25
Pct maq 1:	0	Pct cm 1:	0
Pct pcm 1:	0	Pct na 1:	75
Pct aq 2:	100	Pct maq 2:	0
Pct cm 2:	0	Pct pcm 2:	0
Pct na 2:	0	Pct aq 3:	0
Pct maq 3:	0	Pct cm 3:	0
Pct pcm 3:	0	Pct na 3:	0
Pct aq 4:	0	Pct maq 4:	0
Pct cm 4:	0	Pct pcm 4:	0
Pct na 4:	0	Pct aq 5:	0
Pct maq 5:	0	Pct cm 5:	0
Pct pcm 5:	0	Pct na 5:	0
Pct aq 6:	0	Pct maq 6:	0
Pct cm 6:	0	Pct pcm 6:	0
Pct na 6:	0	Pct aq 7:	0
Pct maq 7:	0	Pct cm 7:	0
Pct pcm 7:	0	Pct na 7:	0
Pct aq 8:	0	Pct maq 8:	0
Pct cm 8:	0	Pct pcm 8:	0
Pct na 8:	0	Pct aq 9:	0
Pct maq 9:	0	Pct cm 9:	0
Pct pcm 9:	0	Pct na 9:	0
Pct aq 10:	0	Pct maq 10:	0
Pct cm 10:	0	Pct pcm 10:	0
Pct na 10:	0	Pct aq 11:	0
Pct maq 11:	0	Pct cm 11:	0
Pct pcm 11:	0	Pct na 11:	0
Pct aq 12:	0	Pct maq 12:	0
Pct cm 12:	0	Pct pcm 12:	0
Pct na 12:	0	Pct aq 13:	0
Pct maq 13:	0	Pct cm 13:	0
Pct pcm 13:	0	Pct na 13:	0
Within sec:	Y	Loc match:	Y
Aq code 1:	Not Reported		
Hit swl:	Not Reported		
Athk2:	0		
Hcond2:	0		
Vcond2:	0		
T2:	0		
D50plek:	0		



# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID  
Direction  
Distance  
Elevation

Database EDR ID Number

13  
East  
1/4 - 1/2 Mile  
Lower

FED USGS USGS2318026

Agency cd:	USGS	Site no:	424342084324601
Site name:	45-1		
Latitude:	Non-responsive	Dec lat:	Non-
Longitude:		Coor meth:	M
Dec lon:		Latlong datum:	NAD27
Coor accr:	M	District:	26
Dec latlong datum:	NAD83	County:	065
State:	26	Land net:	Not Reported
Country:	US	Map scale:	Not Reported
Location map:	LANSING SOUTH		
Altitude:	Not Reported		
Altitude method:	Not Reported		
Altitude accuracy:	Not Reported		
Altitude datum:	Not Reported		
Hydrologic:	Not Reported		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	Not Reported
Date inventoried:	19930923	Mean greenwich time offset:	EST
Local standard time flag:	Y		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	Not Reported	Hole depth:	Not Reported
Source of depth data:	Not Reported		
Project number:	442605500		
Real time data flag:	0	Daily flow data begin date:	0000-00-00
Daily flow data end date:	0000-00-00	Daily flow data count:	0
Peak flow data begin date:	0000-00-00	Peak flow data end date:	0000-00-00
Peak flow data count:	0	Water quality data begin date:	1993-09-23
Water quality data end date:	1993-09-23	Water quality data count:	1
Ground water data begin date:	0000-00-00	Ground water data end date:	0000-00-00
Ground water data count:	0		

Ground-water levels, Number of Measurements: 0

C14  
ENE  
1/4 - 1/2 Mile  
Lower

MI WELLS MI20101439

Wellid:	33000006276	Import id:	33040216306
County:	Ingham	Township:	Lansing
Town range:	04N 02W	Section:	16
Owner name:	Non-responsive		
Well addr:	BWL WELL 25-07		
Well depth:	444		
Well type:	TY1PU		
Wssn:	3760		
Well num:	BWL WELL 25-07	Driller id:	729
Const date:	1949-05-09 00:00:00.000	Case type:	*U
Case dia:	0		

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Case depth:	0		
Screen frm:	0		
Screen to:	0		
Swl:	999.99		
Test depth:	0		
Test hours:	0		
Test rate:	0	Test methd:	*U
Grout:	1	Pmp cpcty:	0
Latitude:	Non-		
Longitude:	responsive		
Methd coll:	I1		
Elevation:	835.82		
Elev methd:	S1	Depth flag:	Not Reported
Elev flag:	Not Reported	Swl flag:	2
Elev dem:	830	Elev dif:	6
Elev miv:	836	Aq code:	R
Aq flag:	Not Reported	Pct aq:	72
Pct aq d:	100	Pct aq r:	69
Pct maq:	0	Pct maq d:	0
Pct maq r:	0	Pct cm:	9
Pct cm d:	0	Pct cm r:	10
Pct pcm:	19	Pct pcm d:	0
Pct pcm r:	21	Pct na:	0
Pct na d:	0	Pct na r:	0
Pct flag:	Not Reported	Rock top:	50
D r type:	AA	Spc cpcty:	0
A thicknes:	0	A pct aq:	0
A pct maq:	0	A pct pcm:	0
A pct cm:	0	A pct na:	0
A thickns2:	0	A pct aq2:	0
A pct maq2:	0	A pct pcm2:	0
A pct cm2:	0	A pct na2:	0
A hit swl:	F	A hit top:	T
A hit rock:	F	A sc lith1:	Not Reported
A sc lmod1:	Not Reported	A sc lmaq1:	Not Reported
A sc lpct1:	0	A sc lith2:	Not Reported
A sc lmod2:	Not Reported	A sc lmaq2:	Not Reported
A sc lpct2:	0	Pct aq 1:	100
Pct maq 1:	0	Pct cm 1:	0
Pct pcm 1:	0	Pct na 1:	0
Pct aq 2:	100	Pct maq 2:	0
Pct cm 2:	0	Pct pcm 2:	0
Pct na 2:	0	Pct aq 3:	0
Pct maq 3:	0	Pct cm 3:	0
Pct pcm 3:	0	Pct na 3:	0
Pct aq 4:	0	Pct maq 4:	0
Pct cm 4:	0	Pct pcm 4:	0
Pct na 4:	0	Pct aq 5:	0
Pct maq 5:	0	Pct cm 5:	0
Pct pcm 5:	0	Pct na 5:	0
Pct aq 6:	0	Pct maq 6:	0
Pct cm 6:	0	Pct pcm 6:	0
Pct na 6:	0	Pct aq 7:	0
Pct maq 7:	0	Pct cm 7:	0
Pct pcm 7:	0	Pct na 7:	0
Pct aq 8:	0	Pct maq 8:	0
Pct cm 8:	0	Pct pcm 8:	0
Pct na 8:	0	Pct aq 9:	0
Pct maq 9:	0	Pct cm 9:	0
Pct pcm 9:	0	Pct na 9:	0

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Pct aq 10:	0	Pct maq 10:	0
Pct cm 10:	0	Pct pcm 10:	0
Pct na 10:	0	Pct aq 11:	0
Pct maq 11:	0	Pct cm 11:	0
Pct pcm 11:	0	Pct na 11:	0
Pct aq 12:	0	Pct maq 12:	0
Pct cm 12:	0	Pct pcm 12:	0
Pct na 12:	0	Pct aq 13:	0
Pct maq 13:	0	Pct cm 13:	0
Pct pcm 13:	0	Pct na 13:	0
Within sec:	Y	Loc match:	Y
Aq code 1:	R		
Hit swl:	F		
Athk2:	0		
Hcond2:	50		
Vcond2:	50		
T2:	1500		
D50plek:	76.63851		

15  
NE  
1/4 - 1/2 Mile  
Lower

FED USGS USGS2318036

Agency cd:	USGS	Site no:	424358084325201
Site name:	04N 02W 16DAA 01		
Latitude:	Non-responsive	Dec lat:	Non-
Longitude:		Coor meth:	M
Dec lon:		Latlong datum:	NAD27
Coor accr:	F	District:	26
Dec latlong datum:	NAD83	County:	065
State:	26	Land net:	S16T04NR02WM
Country:	US	Map scale:	Not Reported
Location map:	Not Reported		
Altitude:	846		
Altitude method:	Interpolated from topographic map		
Altitude accuracy:	5.		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	Upper Grand. Michigan. Area = 1730 sq.mi.		
Topographic:	Undulating		
Site type:	Ground-water other than Spring	Date construction:	19270101
Date inventoried:	Not Reported	Mean greenwich time offset:	EST
Local standard time flag:	Y		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	SAGINAW FORMATION		
Well depth:	446	Hole depth:	Not Reported
Source of depth data:	Not Reported		
Project number:	Not Reported		
Real time data flag:	0	Daily flow data begin date:	0000-00-00
Daily flow data end date:	0000-00-00	Daily flow data count:	0
Peak flow data begin date:	0000-00-00	Peak flow data end date:	0000-00-00
Peak flow data count:	0	Water quality data begin date:	1952-02-08
Water quality data end date:	1955-03-29	Water quality data count:	3
Ground water data begin date:	1927-01-01	Ground water data end date:	1927-01-01
Ground water data count:	1		

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1927-01-01	58.00	

C16  
ENE  
1/4 - 1/2 Mile  
Lower

FED USGS USGS2318187

Agency cd:	USGS	Site no:	423127084321901
Site name:	04N 02W 16DAAA 01 INGHAM CO (CEDAR)		
Latitude:	Non-responsive	Dec lat:	Non-
Longitude:		Coord meth:	M
Dec lon:		Latlong datum:	NAD27
Coord accr:	S	District:	26
Dec latlong datum:	NAD83	County:	065
State:	26	Land net:	04N 02W 16DAAA 01
Country:	US	Map scale:	24000
Location map:	LANSING SOUTH		
Altitude:	829.10		
Altitude method:	Level or other surveying method		
Altitude accuracy:	.01		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	Upper Grand. Michigan. Area = 1730 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	19450101
Date inventoried:	Not Reported	Mean greenwich time offset:	EST
Local standard time flag:	N		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	SAGINAW FORMATION		
Well depth:	417	Hole depth:	417
Source of depth data:	Not Reported		
Project number:	442600200		
Real time data flag:	0	Daily flow data begin date:	0000-00-00
Daily flow data end date:	0000-00-00	Daily flow data count:	0
Peak flow data begin date:	0000-00-00	Peak flow data end date:	0000-00-00
Peak flow data count:	0	Water quality data begin date:	0000-00-00
Water quality data end date:	0000-00-00	Water quality data count:	0
Ground water data begin date:	2002-08-29	Ground water data end date:	2005-01-28
Ground water data count:	19		

Ground-water levels, Number of Measurements: 19

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
2005-01-28	25.57		2004-12-17	26.30	
2004-11-05	26.69		2004-09-16	28.71	
2004-07-30	27.59		2004-06-10	27.50	
2004-04-16	26.73		2004-03-04	24.56	
2004-01-14	23.79		2003-11-24	24.00	
2003-10-02	24.78		2003-06-30	23.11	
2003-05-08	22.23		2003-03-28	22.14	
2003-02-18	22.37		2003-01-09	21.79	
2002-11-19	21.96		2002-10-09	22.70	
2002-08-29	24.46				

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID  
Direction  
Distance  
Elevation

Database EDR ID Number

D19  
SE  
1/2 - 1 Mile  
Lower

MI WELLS MI20101458

Wellid:	33000006318	Import id:	33040221301
County:	Ingham	Township:	Lansing
Town range:	04N 02W	Section:	21
Owner name:	Non-responsive		
Well addr:	BWL WELL 45-03		
Well depth:	422		
Well type:	TY1PU		
Wssn:	3760		
Well num:	BWL WELL 45-03	Driller id:	729
Const date:	1954-04-13 00:00:00.000	Case type:	*U
Case dia:	0		
Case depth:	0		
Screen frm:	0		
Screen to:	0		
Swl:	44.25		
Test depth:	0		
Test hours:	0		
Test rate:	0	Test methd:	*U
Grout:	1	Pmp cpcity:	0
Latitude:	Non-responsive		
Longitude:			
Methd coll:	I1		
Elevation:	822		
Elev methd:	T1	Depth flag:	Not Reported
Elev flag:	Not Reported	Swl flag:	Not Reported
Elev dem:	820	Elev dif:	2
Elev miv:	822	Aq code:	Not Reported
Aq flag:	L	Pct aq:	0
Pct aq d:	0	Pct aq r:	0
Pct maq:	0	Pct maq d:	0
Pct maq r:	0	Pct cm:	0
Pct cm d:	0	Pct cm r:	0
Pct pcm:	0	Pct pcm d:	0
Pct pcm r:	0	Pct na:	0
Pct na d:	0	Pct na r:	0
Pct flag:	Not Reported	Rock top:	-9
D r type:	Not Reported	Spc cpcity:	0
A thicknes:	0	A pct aq:	0
A pct maq:	0	A pct pcm:	0
A pct cm:	0	A pct na:	0
A thickns2:	0	A pct aq2:	0
A pct maq2:	0	A pct pcm2:	0
A pct cm2:	0	A pct na2:	0
A hit swl:	F	A hit top:	T
A hit rock:	F	A sc lith1:	Not Reported
A sc lmod1:	Not Reported	A sc lmaq1:	Not Reported
A sc lpct1:	0	A sc lith2:	Not Reported
A sc lmod2:	Not Reported	A sc lmaq2:	Not Reported
A sc lpct2:	0	Pct aq 1:	50
Pct maq 1:	0	Pct cm 1:	0
Pct pcm 1:	0	Pct na 1:	50

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Pct aq 2:	0	Pct maq 2:	0
Pct cm 2:	0	Pct pcm 2:	0
Pct na 2:	0	Pct aq 3:	0
Pct maq 3:	0	Pct cm 3:	0
Pct pcm 3:	0	Pct na 3:	0
Pct aq 4:	0	Pct maq 4:	0
Pct cm 4:	0	Pct pcm 4:	0
Pct na 4:	0	Pct aq 5:	0
Pct maq 5:	0	Pct cm 5:	0
Pct pcm 5:	0	Pct na 5:	0
Pct aq 6:	0	Pct maq 6:	0
Pct cm 6:	0	Pct pcm 6:	0
Pct na 6:	0	Pct aq 7:	0
Pct maq 7:	0	Pct cm 7:	0
Pct pcm 7:	0	Pct na 7:	0
Pct aq 8:	0	Pct maq 8:	0
Pct cm 8:	0	Pct pcm 8:	0
Pct na 8:	0	Pct aq 9:	0
Pct maq 9:	0	Pct cm 9:	0
Pct pcm 9:	0	Pct na 9:	0
Pct aq 10:	0	Pct maq 10:	0
Pct cm 10:	0	Pct pcm 10:	0
Pct na 10:	0	Pct aq 11:	0
Pct maq 11:	0	Pct cm 11:	0
Pct pcm 11:	0	Pct na 11:	0
Pct aq 12:	0	Pct maq 12:	0
Pct cm 12:	0	Pct pcm 12:	0
Pct na 12:	0	Pct aq 13:	0
Pct maq 13:	0	Pct cm 13:	0
Pct pcm 13:	0	Pct na 13:	0
Within sec:	Y	Loc match:	Y
Aq code 1:	Not Reported		
Hit swl:	Not Reported		
Athk2:	0		
Hcond2:	0		
Vcond2:	0		
T2:	0		
D50plek:	0		

**D20**  
**SE**  
**1/2 - 1 Mile**  
**Lower**

**MI WELLS      MI20101457**

Wellid:	33000006317	Import id:	33040221008
County:	Ingham	Township:	Lansing
Town range:	04N 02W	Section:	21
Owner name:	<b>Non-responsive</b>		
Well addr:	Not Reported		
Well depth:	42		
Well type:	TESTW		
Wssn:	0		
Well num:	Not Reported	Driller id:	0
Const date:	1965-10-06 00:00:00.000	Case type:	STEBLA
Case dia:	1.25		

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Case depth:	0		
Screen frm:	0		
Screen to:	0		
Swl:	0		
Test depth:	0		
Test hours:	0		
Test rate:	0	Test methd:	*U
Grout:	1	Pmp cpcty:	0
Latitude:	Non-responsive		
Longitude:			
Methd coll:	I1		
Elevation:	825		
Elev methd:	T1	Depth flag:	Not Reported
Elev flag:	Not Reported	Swl flag:	1
Elev dem:	817	Elev dif:	8
Elev miv:	825	Aq code:	R
Aq flag:	Not Reported	Pct aq:	86
Pct aq d:	95	Pct aq r:	0
Pct maq:	10	Pct maq d:	0
Pct maq r:	100	Pct cm:	0
Pct cm d:	0	Pct cm r:	0
Pct pcm:	0	Pct pcm d:	0
Pct pcm r:	0	Pct na:	5
Pct na d:	5	Pct na r:	0
Pct flag:	Not Reported	Rock top:	38
D r type:	AM	Spc cpcty:	0
A thicknes:	0	A pct aq:	0
A pct maq:	0	A pct pcm:	0
A pct cm:	0	A pct na:	0
A thickns2:	0	A pct aq2:	0
A pct maq2:	0	A pct pcm2:	0
A pct cm2:	0	A pct na2:	0
A hit swl:	F	A hit top:	T
A hit rock:	F	A sc lith1:	Not Reported
A sc lmod1:	Not Reported	A sc lmaq1:	Not Reported
A sc lpct1:	0	A sc lith2:	Not Reported
A sc lmod2:	Not Reported	A sc lmaq2:	Not Reported
A sc lpct2:	0	Pct aq 1:	90
Pct maq 1:	0	Pct cm 1:	0
Pct pcm 1:	0	Pct na 1:	10
Pct aq 2:	0	Pct maq 2:	0
Pct cm 2:	0	Pct pcm 2:	0
Pct na 2:	0	Pct aq 3:	0
Pct maq 3:	0	Pct cm 3:	0
Pct pcm 3:	0	Pct na 3:	0
Pct aq 4:	0	Pct maq 4:	0
Pct cm 4:	0	Pct pcm 4:	0
Pct na 4:	0	Pct aq 5:	0
Pct maq 5:	0	Pct cm 5:	0
Pct pcm 5:	0	Pct na 5:	0
Pct aq 6:	0	Pct maq 6:	0
Pct cm 6:	0	Pct pcm 6:	0
Pct na 6:	0	Pct aq 7:	0
Pct maq 7:	0	Pct cm 7:	0
Pct pcm 7:	0	Pct na 7:	0
Pct aq 8:	0	Pct maq 8:	0
Pct cm 8:	0	Pct pcm 8:	0
Pct na 8:	0	Pct aq 9:	0
Pct maq 9:	0	Pct cm 9:	0
Pct pcm 9:	0	Pct na 9:	0

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Pct aq 10:	0	Pct maq 10:	0
Pct cm 10:	0	Pct pcm 10:	0
Pct na 10:	0	Pct aq 11:	0
Pct maq 11:	0	Pct cm 11:	0
Pct pcm 11:	0	Pct na 11:	0
Pct aq 12:	0	Pct maq 12:	0
Pct cm 12:	0	Pct pcm 12:	0
Pct na 12:	0	Pct aq 13:	0
Pct maq 13:	0	Pct cm 13:	0
Pct pcm 13:	0	Pct na 13:	0
Within sec:	Y	Loc match:	Y
Aq code 1:	R		
Hit swl:	F		
Athk2:	0		
Hcond2:	55.55556		
Vcond2:	52.94118		
T2:	1000		
D50plek:	31.31797		

21  
ENE  
1/2 - 1 Mile  
Lower

MI WELLS MI20101438

Wellid:	33000006275	Import id:	33040216305
County:	Ingham	Township:	Lansing
Town range:	04N 02W	Section:	16
Owner name:	Non-responsive		
Well addr:	BWL WELL 25-02		
Well depth:	445		
Well type:	TY1PU		
Wssn:	3760		
Well num:	BWL WELL 25-02	Driller id:	729
Const date:	Not Reported	Case type:	*U
Case dia:	0		
Case depth:	0		
Screen frm:	0		
Screen to:	0		
Swl:	999.99		
Test depth:	0		
Test hours:	0		
Test rate:	0	Test methd:	*U
Grout:	1	Pmp cpclty:	0
Latitude:	Non-responsive		
Longitude:			
Methd coll:	I1		
Elevation:	845		
Elev methd:	T1	Depth flag:	Not Reported
Elev flag:	Not Reported	Swl flag:	2
Elev dem:	843	Elev dif:	2
Elev miv:	845	Aq code:	R
Aq flag:	Not Reported	Pct aq:	76
Pct aq d:	42	Pct aq r:	82
Pct maq:	7	Pct maq d:	50
Pct maq r:	0	Pct cm:	17



## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Pct cm d:	8	Pct cm r:	18
Pct pcm:	0	Pct pcm d:	0
Pct pcm r:	0	Pct na:	0
Pct na d:	0	Pct na r:	0
Pct flag:	Not Reported	Rock top:	60
D r type:	AA	Spc cpcity:	0
A thicknes:	0	A pct aq:	0
A pct maq:	0	A pct pcm:	0
A pct cm:	0	A pct na:	0
A thickns2:	0	A pct aq2:	0
A pct maq2:	0	A pct pcm2:	0
A pct cm2:	0	A pct na2:	0
A hit swl:	F	A hit top:	T
A hit rock:	F	A sc lith1:	Not Reported
A sc lmod1:	Not Reported	A sc lmaq1:	Not Reported
A sc lpct1:	0	A sc lith2:	Not Reported
A sc lmod2:	Not Reported	A sc lmaq2:	Not Reported
A sc lpct2:	0	Pct aq 1:	0
Pct maq 1:	100	Pct cm 1:	0
Pct pcm 1:	0	Pct na 1:	0
Pct aq 2:	25	Pct maq 2:	50
Pct cm 2:	25	Pct pcm 2:	0
Pct na 2:	0	Pct aq 3:	100
Pct maq 3:	0	Pct cm 3:	0
Pct pcm 3:	0	Pct na 3:	0
Pct aq 4:	0	Pct maq 4:	0
Pct cm 4:	0	Pct pcm 4:	0
Pct na 4:	0	Pct aq 5:	0
Pct maq 5:	0	Pct cm 5:	0
Pct pcm 5:	0	Pct na 5:	0
Pct aq 6:	0	Pct maq 6:	0
Pct cm 6:	0	Pct pcm 6:	0
Pct na 6:	0	Pct aq 7:	0
Pct maq 7:	0	Pct cm 7:	0
Pct pcm 7:	0	Pct na 7:	0
Pct aq 8:	0	Pct maq 8:	0
Pct cm 8:	0	Pct pcm 8:	0
Pct na 8:	0	Pct aq 9:	0
Pct maq 9:	0	Pct cm 9:	0
Pct pcm 9:	0	Pct na 9:	0
Pct aq 10:	0	Pct maq 10:	0
Pct cm 10:	0	Pct pcm 10:	0
Pct na 10:	0	Pct aq 11:	0
Pct maq 11:	0	Pct cm 11:	0
Pct pcm 11:	0	Pct na 11:	0
Pct aq 12:	0	Pct maq 12:	0
Pct cm 12:	0	Pct pcm 12:	0
Pct na 12:	0	Pct aq 13:	0
Pct maq 13:	0	Pct cm 13:	0
Pct pcm 13:	0	Pct na 13:	0
Within sec:	Y	Loc match:	Y
Aq code 1:	R		
Hit swl:	F		
Athk2:	0		
Hcond2:	190.00001		
Vcond2:	.0008		
T2:	7600.0005		
D50plek:	477.32181		

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID  
Direction  
Distance  
Elevation

Database EDR ID Number

E22

SE

1/2 - 1 Mile

Lower

MI WELLS

MI20101459

Wellid:	33000006319	Import id:	33040221302
County:	Ingham	Township:	Lansing
Town range:	04N 02W	Section:	21
Owner name:	Non-responsive		
Well addr:	BWL WELL 45-04		
Well depth:	454		
Well type:	TY1PU		
Wssn:	3760		
Well num:	BWL WELL 45-04	Driller id:	729
Const date:	1954-05-26 00:00:00.000	Case type:	*U
Case dia:	0		
Case depth:	0		
Screen frm:	0		
Screen to:	0		
Swl:	46.5		
Test depth:	0		
Test hours:	0		
Test rate:	0	Test methd:	*U
Grout:	1	Pmp cpcty:	0
Latitude:	Non-responsive		
Longitude:			
Methd coll:	I1		
Elevation:	823	Depth flag:	Not Reported
Elev methd:	T1	Swl flag:	Not Reported
Elev flag:	Not Reported	Elev dif:	6
Elev dem:	817	Aq code:	R
Elev miv:	823	Pct aq:	66
Aq flag:	Not Reported	Pct aq r:	64
Pct aq d:	76	Pct maq d:	0
Pct maq:	4	Pct cm:	24
Pct maq r:	4	Pct cm r:	27
Pct cm d:	0	Pct pcm d:	0
Pct pcm:	0	Pct na:	7
Pct pcm r:	0	Pct na r:	4
Pct na d:	24	Rock top:	62
Pct flag:	Not Reported	Spc cpcty:	0
D r type:	Not Reported	A pct aq:	0
A thicknes:	0	A pct pcm:	0
A pct maq:	0	A pct na:	0
A pct cm:	0	A pct aq2:	0
A thickns2:	0	A pct pcm2:	0
A pct maq2:	0	A pct na2:	0
A pct cm2:	0	A hit top:	T
A hit swl:	F	A sc lith1:	Not Reported
A hit rock:	F	A sc lmaq1:	Not Reported
A sc lmod1:	Not Reported	A sc lith2:	Not Reported
A sc lpct1:	0	A sc lmaq2:	Not Reported
A sc lmod2:	Not Reported	Pct aq 1:	25
A sc lpct2:	0	Pct cm 1:	0
Pct maq 1:	0	Pct na 1:	75
Pct pcm 1:	0		

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Pct aq 2:	100	Pct maq 2:	0
Pct cm 2:	0	Pct pcm 2:	0
Pct na 2:	0	Pct aq 3:	100
Pct maq 3:	0	Pct cm 3:	0
Pct pcm 3:	0	Pct na 3:	0
Pct aq 4:	0	Pct maq 4:	0
Pct cm 4:	0	Pct pcm 4:	0
Pct na 4:	0	Pct aq 5:	0
Pct maq 5:	0	Pct cm 5:	0
Pct pcm 5:	0	Pct na 5:	0
Pct aq 6:	0	Pct maq 6:	0
Pct cm 6:	0	Pct pcm 6:	0
Pct na 6:	0	Pct aq 7:	0
Pct maq 7:	0	Pct cm 7:	0
Pct pcm 7:	0	Pct na 7:	0
Pct aq 8:	0	Pct maq 8:	0
Pct cm 8:	0	Pct pcm 8:	0
Pct na 8:	0	Pct aq 9:	0
Pct maq 9:	0	Pct cm 9:	0
Pct pcm 9:	0	Pct na 9:	0
Pct aq 10:	0	Pct maq 10:	0
Pct cm 10:	0	Pct pcm 10:	0
Pct na 10:	0	Pct aq 11:	0
Pct maq 11:	0	Pct cm 11:	0
Pct pcm 11:	0	Pct na 11:	0
Pct aq 12:	0	Pct maq 12:	0
Pct cm 12:	0	Pct pcm 12:	0
Pct na 12:	0	Pct aq 13:	0
Pct maq 13:	0	Pct cm 13:	0
Pct pcm 13:	0	Pct na 13:	0
Within sec:	Y	Loc match:	Y
Aq code 1:	R		
Hit swl:	F		
Athk2:	0		
Hcond2:	88.09524		
Vcond2:	68.85246		
T2:	3700		
D50plek:	252.75128		

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<b>23</b> <b>SE</b> <b>1/2 - 1 Mile</b> <b>Lower</b>	Site ID: 330245 Groundwater Flow: NNE Shallowest Water Table Depth: 11 Deepest Water Table Depth: 17 Average Water Table Depth: Not Reported Date: 05/1991	<b>AQUIFLOW 34728</b>
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<b>E24</b> <b>SE</b> <b>1/2 - 1 Mile</b> <b>Lower</b>	Wellid: 33000006316 County: Ingham Town range: 04N 02W Owner name: <span style="background-color: black; color: red;">Non-responsive</span> Well addr: Not Reported Well depth: 47 Well type: TESTW Wssn: 0 Well num: Not Reported Const date: 1965-10-06 00:00:00.000 Case dia: 1.25	<b>MI WELLS MI20101456</b>  Import id: 33040221007 Township: Lansing Section: 21  Driller id: 0 Case type: STEBLA
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# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Case depth:	29.6		
Screen frm:	0		
Screen to:	0		
Swl:	19.95		
Test depth:	0		
Test hours:	0		
Test rate:	0	Test methd:	*U
Grout:	1	Pmp cpcity:	0
Latitude:	Non-responsive		
Longitude:			
Methd coll:	I1		
Elevation:	825		
Elev methd:	T1	Depth flag:	Not Reported
Elev flag:	Not Reported	Swl flag:	Not Reported
Elev dem:	817	Elev dif:	8
Elev miv:	825	Aq code:	R
Aq flag:	Not Reported	Pct aq:	77
Pct aq d:	84	Pct aq r:	0
Pct maq:	0	Pct maq d:	0
Pct maq r:	0	Pct cm:	0
Pct cm d:	0	Pct cm r:	0
Pct pcm:	0	Pct pcm d:	0
Pct pcm r:	0	Pct na:	9
Pct na d:	0	Pct na r:	100
Pct flag:	Not Reported	Rock top:	43
D r type:	Not Reported	Spc cpcity:	0
A thicknes:	0	A pct aq:	0
A pct maq:	0	A pct pcm:	0
A pct cm:	0	A pct na:	0
A thickns2:	0	A pct aq2:	0
A pct maq2:	0	A pct pcm2:	0
A pct cm2:	0	A pct na2:	0
A hit swl:	F	A hit top:	T
A hit rock:	F	A sc lith1:	Not Reported
A sc lmod1:	Not Reported	A sc lmaq1:	Not Reported
A sc lpct1:	0	A sc lith2:	Not Reported
A sc lmod2:	Not Reported	A sc lmaq2:	Not Reported
A sc lpct2:	0	Pct aq 1:	90
Pct maq 1:	0	Pct cm 1:	0
Pct pcm 1:	0	Pct na 1:	10
Pct aq 2:	75	Pct maq 2:	0
Pct cm 2:	0	Pct pcm 2:	0
Pct na 2:	25	Pct aq 3:	0
Pct maq 3:	0	Pct cm 3:	0
Pct pcm 3:	0	Pct na 3:	0
Pct aq 4:	0	Pct maq 4:	0
Pct cm 4:	0	Pct pcm 4:	0
Pct na 4:	0	Pct aq 5:	0
Pct maq 5:	0	Pct cm 5:	0
Pct pcm 5:	0	Pct na 5:	0
Pct aq 6:	0	Pct maq 6:	0
Pct cm 6:	0	Pct pcm 6:	0
Pct na 6:	0	Pct aq 7:	0
Pct maq 7:	0	Pct cm 7:	0
Pct pcm 7:	0	Pct na 7:	0
Pct aq 8:	0	Pct maq 8:	0
Pct cm 8:	0	Pct pcm 8:	0
Pct na 8:	0	Pct aq 9:	0
Pct maq 9:	0	Pct cm 9:	0
Pct pcm 9:	0	Pct na 9:	0

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Pct aq 10:	0	Pct maq 10:	0
Pct cm 10:	0	Pct pcm 10:	0
Pct na 10:	0	Pct aq 11:	0
Pct maq 11:	0	Pct cm 11:	0
Pct pcm 11:	0	Pct na 11:	0
Pct aq 12:	0	Pct maq 12:	0
Pct cm 12:	0	Pct pcm 12:	0
Pct na 12:	0	Pct aq 13:	0
Pct maq 13:	0	Pct cm 13:	0
Pct pcm 13:	0	Pct na 13:	0
Within sec:	Y	Loc match:	Y
Aq code 1:	R		
Hit swl:	F		
Athk2:	0		
Hcond2:	100		
Vcond2:	100		
T2:	1800		
D50plek:	54.65974		

**F25**  
**NE**  
**1/2 - 1 Mile**  
**Lower**

Site ID: 330259  
Groundwater Flow: NE  
Shallowest Water Table Depth: 36.12  
Deepest Water Table Depth: 41.37  
Average Water Table Depth: Not Reported  
Date: 04/1991

**AQUIFLOW 34737**

**F26**  
**NE**  
**1/2 - 1 Mile**  
**Lower**

**MI WELLS MI20101437**

Wellid:	33000006274	Import id:	33040216304
County:	Ingham	Township:	Lansing
Town range:	04N 02W	Section:	16
Owner name:	Non-responsive		
Well addr:	BWL WELL 25-11		
Well depth:	451		
Well type:	TY1PU		
Wssn:	3760		
Well num:	BWL WELL 25-11	Driller id:	729
Const date:	1952-05-07 00:00:00.000	Case type:	*U
Case dia:	0		
Case depth:	0		
Screen frm:	0		
Screen to:	0		
Swl:	999.99		
Test depth:	0		
Test hours:	0		
Test rate:	0	Test methd:	*U
Grout:	1	Pmp cpcity:	0
Latitude:	Non-responsive		
Longitude:			

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Methd coll:	I1	Depth flag:	Not Reported
Elevation:	843	Swl flag:	2
Elev methd:	T1	Elev dif:	0
Elev flag:	Not Reported	Aq code:	R
Elev dem:	843	Pct aq:	69
Elev miv:	843	Pct aq r:	73
Aq flag:	Not Reported	Pct maq d:	0
Pct aq d:	46	Pct cm:	31
Pct maq:	0	Pct cm r:	27
Pct maq r:	0	Pct pcm d:	0
Pct cm d:	54	Pct na:	0
Pct pcm:	0	Pct na r:	0
Pct pcm r:	0	Rock top:	65
Pct na d:	0	Spc cpcity:	0
Pct flag:	Not Reported	A pct aq:	0
D r type:	AA	A pct pcm:	0
A thicknes:	0	A pct na:	0
A pct maq:	0	A pct aq2:	0
A pct cm:	0	A pct pcm2:	0
A thickns2:	0	A pct na2:	0
A pct maq2:	0	A hit top:	T
A pct cm2:	0	A sc lith1:	Not Reported
A hit swl:	F	A sc lmaq1:	Not Reported
A hit rock:	F	A sc lith2:	Not Reported
A sc lmod1:	Not Reported	A sc lmaq2:	Not Reported
A sc lpct1:	0	Pct aq 1:	0
A sc lmod2:	Not Reported	Pct cm 1:	100
A sc lpct2:	0	Pct na 1:	0
Pct maq 1:	0	Pct maq 2:	0
Pct pcm 1:	0	Pct pcm 2:	0
Pct aq 2:	25	Pct aq 3:	100
Pct cm 2:	75	Pct cm 3:	0
Pct na 2:	0	Pct na 3:	0
Pct maq 3:	0	Pct maq 4:	0
Pct pcm 3:	0	Pct pcm 4:	0
Pct aq 4:	0	Pct aq 5:	0
Pct cm 4:	0	Pct cm 5:	0
Pct na 4:	0	Pct na 5:	0
Pct maq 5:	0	Pct maq 6:	0
Pct pcm 5:	0	Pct pcm 6:	0
Pct aq 6:	0	Pct aq 7:	0
Pct cm 6:	0	Pct cm 7:	0
Pct na 6:	0	Pct na 7:	0
Pct maq 7:	0	Pct maq 8:	0
Pct pcm 7:	0	Pct pcm 8:	0
Pct aq 8:	0	Pct aq 9:	0
Pct cm 8:	0	Pct cm 9:	0
Pct na 8:	0	Pct na 9:	0
Pct maq 9:	0	Pct maq 10:	0
Pct pcm 9:	0	Pct pcm 10:	0
Pct aq 10:	0	Pct aq 11:	0
Pct cm 10:	0	Pct cm 11:	0
Pct na 10:	0	Pct na 11:	0
Pct maq 11:	0	Pct maq 12:	0
Pct pcm 11:	0	Pct pcm 12:	0
Pct aq 12:	0	Pct aq 13:	0
Pct cm 12:	0	Pct cm 13:	0
Pct na 12:	0	Pct na 13:	0
Pct maq 13:	0		
Pct pcm 13:	0		

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Within sec:	Y	Loc match:	Y
Aq code 1:	R		
Hit swl:	F		
Athk2:	0		
Hcond2:	200.00003		
Vcond2:	.0003		
T2:	9000.0015		
D50plek:	630.77542		

**27**  
**ESE**  
**1/2 - 1 Mile**  
**Lower**

Site ID:	330247
Groundwater Flow:	NE
Shallowest Water Table Depth:	11.11
Deepest Water Table Depth:	19.83
Average Water Table Depth:	Not Reported
Date:	12/15/1994

**AQUIFLOW 34744**

**28**  
**East**  
**1/2 - 1 Mile**  
**Higher**

**MI WELLS MI20101429**

Wellid:	33000006258	Import id:	33040215302
County:	Ingham	Township:	Lansing
Town range:	04N 02W	Section:	15
Owner name:	Non-responsive		
Well addr:	BWL WELL 30-06		
Well depth:	393		
Well type:	TY1PU		
Wssn:	3760		
Well num:	BWL WELL 30-06	Driller id:	729
Const date:	1943-05-18 00:00:00.000	Case type:	*U
Case dia:	14		
Case depth:	0		
Screen frm:	0		
Screen to:	0		
Swl:	999.99		
Test depth:	0		
Test hours:	0		
Test rate:	0	Test methd:	*U
Grout:	1	Pmp cpcity:	0
Latitude:	Non-responsive		
Longitude:			
Methd coll:	I1		
Elevation:	862.55		
Elev methd:	S1	Depth flag:	Not Reported
Elev flag:	Not Reported	Swl flag:	2
Elev dem:	856	Elev dif:	7
Elev miv:	863	Aq code:	R
Aq flag:	Not Reported	Pct aq:	66
Pct aq d:	31	Pct aq r:	75
Pct maq:	4	Pct maq d:	0
Pct maq r:	5	Pct cm:	28

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Pct cm d:	69	Pct cm r:	18
Pct pcm:	0	Pct pcm d:	0
Pct pcm r:	0	Pct na:	0
Pct na d:	0	Pct na r:	0
Pct flag:	Not Reported	Rock top:	80
D r type:	AA	Spc cpcity:	0
A thicknes:	0	A pct aq:	0
A pct maq:	0	A pct pcm:	0
A pct cm:	0	A pct na:	0
A thickns2:	0	A pct aq2:	0
A pct maq2:	0	A pct pcm2:	0
A pct cm2:	0	A pct na2:	0
A hit swl:	F	A hit top:	T
A hit rock:	F	A sc lith1:	Not Reported
A sc lmod1:	Not Reported	A sc lmaq1:	Not Reported
A sc lpct1:	0	A sc lith2:	Not Reported
A sc lmod2:	Not Reported	A sc lmaq2:	Not Reported
A sc lpct2:	0	Pct aq 1:	0
Pct maq 1:	0	Pct cm 1:	100
Pct pcm 1:	0	Pct na 1:	0
Pct aq 2:	0	Pct maq 2:	0
Pct cm 2:	100	Pct pcm 2:	0
Pct na 2:	0	Pct aq 3:	25
Pct maq 3:	0	Pct cm 3:	75
Pct pcm 3:	0	Pct na 3:	0
Pct aq 4:	100	Pct maq 4:	0
Pct cm 4:	0	Pct pcm 4:	0
Pct na 4:	0	Pct aq 5:	0
Pct maq 5:	0	Pct cm 5:	0
Pct pcm 5:	0	Pct na 5:	0
Pct aq 6:	0	Pct maq 6:	0
Pct cm 6:	0	Pct pcm 6:	0
Pct na 6:	0	Pct aq 7:	0
Pct maq 7:	0	Pct cm 7:	0
Pct pcm 7:	0	Pct na 7:	0
Pct aq 8:	0	Pct maq 8:	0
Pct cm 8:	0	Pct pcm 8:	0
Pct na 8:	0	Pct aq 9:	0
Pct maq 9:	0	Pct cm 9:	0
Pct pcm 9:	0	Pct na 9:	0
Pct aq 10:	0	Pct maq 10:	0
Pct cm 10:	0	Pct pcm 10:	0
Pct na 10:	0	Pct aq 11:	0
Pct maq 11:	0	Pct cm 11:	0
Pct pcm 11:	0	Pct na 11:	0
Pct aq 12:	0	Pct maq 12:	0
Pct cm 12:	0	Pct pcm 12:	0
Pct na 12:	0	Pct aq 13:	0
Pct maq 13:	0	Pct cm 13:	0
Pct pcm 13:	0	Pct na 13:	0
Within sec:	Y	Loc match:	Y
Aq code 1:	R		
Hit swl:	F		
Athk2:	0		
Hcond2:	41.66672		
Vcond2:	.00017		
T2:	2500.0035		
D50plek:	248.82978		



# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID  
Direction  
Distance  
Elevation

Database EDR ID Number

29  
ENE  
1/2 - 1 Mile  
Higher

MI WELLS MI20101428

Wellid:	33000006257	Import id:	33040215301
County:	Ingham	Township:	Lansing
Town range:	04N 02W	Section:	15
Owner name:	Non-responsive		
Well addr:	BWL WELL 25-10		
Well depth:	382		
Well type:	TY1PU		
Wssn:	3760		
Well num:	BWL WELL 25-10	Driller id:	729
Const date:	Not Reported	Case type:	*U
Case dia:	0		
Case depth:	0		
Screen frm:	0		
Screen to:	0		
Swl:	999.99		
Test depth:	0		
Test hours:	0		
Test rate:	0	Test methd:	*U
Grout:	1	Pmp cpcity:	0
Latitude:	Non-responsive		
Longitude:	Non-responsive		
Methd coll:	I1		
Elevation:	870		
Elev methd:	T1	Depth flag:	Not Reported
Elev flag:	Not Reported	Swl flag:	2
Elev dem:	869	Elev dif:	1
Elev miv:	870	Aq code:	R
Aq flag:	Not Reported	Pct aq:	54
Pct aq d:	0	Pct aq r:	67
Pct maq:	1	Pct maq d:	0
Pct maq r:	2	Pct cm:	26
Pct cm d:	100	Pct cm r:	8
Pct pcm:	19	Pct pcm d:	0
Pct pcm r:	23	Pct na:	0
Pct na d:	0	Pct na r:	0
Pct flag:	Not Reported	Rock top:	75
D r type:	Not Reported	Spc cpcity:	0
A thicknes:	0	A pct aq:	0
A pct maq:	0	A pct pcm:	0
A pct cm:	0	A pct na:	0
A thickns2:	0	A pct aq2:	0
A pct maq2:	0	A pct pcm2:	0
A pct cm2:	0	A pct na2:	0
A hit swl:	F	A hit top:	T
A hit rock:	F	A sc lith1:	Not Reported
A sc lmod1:	Not Reported	A sc lmaq1:	Not Reported
A sc lpct1:	0	A sc lith2:	Not Reported
A sc lmod2:	Not Reported	A sc lmaq2:	Not Reported
A sc lpct2:	0	Pct aq 1:	0
Pct maq 1:	0	Pct cm 1:	100
Pct pcm 1:	0	Pct na 1:	0

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Pct aq 2:	0	Pct maq 2:	0
Pct cm 2:	100	Pct pcm 2:	0
Pct na 2:	0	Pct aq 3:	0
Pct maq 3:	0	Pct cm 3:	100
Pct pcm 3:	0	Pct na 3:	0
Pct aq 4:	0	Pct maq 4:	0
Pct cm 4:	0	Pct pcm 4:	0
Pct na 4:	0	Pct aq 5:	0
Pct maq 5:	0	Pct cm 5:	0
Pct pcm 5:	0	Pct na 5:	0
Pct aq 6:	0	Pct maq 6:	0
Pct cm 6:	0	Pct pcm 6:	0
Pct na 6:	0	Pct aq 7:	0
Pct maq 7:	0	Pct cm 7:	0
Pct pcm 7:	0	Pct na 7:	0
Pct aq 8:	0	Pct maq 8:	0
Pct cm 8:	0	Pct pcm 8:	0
Pct na 8:	0	Pct aq 9:	0
Pct maq 9:	0	Pct cm 9:	0
Pct pcm 9:	0	Pct na 9:	0
Pct aq 10:	0	Pct maq 10:	0
Pct cm 10:	0	Pct pcm 10:	0
Pct na 10:	0	Pct aq 11:	0
Pct maq 11:	0	Pct cm 11:	0
Pct pcm 11:	0	Pct na 11:	0
Pct aq 12:	0	Pct maq 12:	0
Pct cm 12:	0	Pct pcm 12:	0
Pct na 12:	0	Pct aq 13:	0
Pct maq 13:	0	Pct cm 13:	0
Pct pcm 13:	0	Pct na 13:	0
Within sec:	Y	Loc match:	Y
Aq code 1:	R		
Hit swl:	F		
Athk2:	0		
Hcond2:	.0001		
Vcond2:	.0001		
T2:	.0055		
D50plek:	.00148		

**30**  
**ENE**  
**1/2 - 1 Mile**  
**Higher**

Site ID: 330424  
Groundwater Flow: NE  
Shallowest Water Table Depth: 1  
Deepest Water Table Depth: 2  
Average Water Table Depth: Not Reported  
Date: 08/1992

**AQUIFLOW 34607**

**31**  
**SE**  
**1/2 - 1 Mile**  
**Lower**

Site ID: 330440  
Groundwater Flow: N  
Shallowest Water Table Depth: 7.5  
Deepest Water Table Depth: 16.5  
Average Water Table Depth: Not Reported  
Date: Not Reported

**AQUIFLOW 34837**

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID  
Direction  
Distance  
Elevation

Database      EDR ID Number

**34**  
**NE**  
**1/2 - 1 Mile**  
**Lower**

Site ID: 330129  
Groundwater Flow: WSW  
Shallowest Water Table Depth: 5.5  
Deepest Water Table Depth: 6  
Average Water Table Depth: Not Reported  
Date: 09/1993

**AQUIFLOW      34709**

**35**  
**NE**  
**1/2 - 1 Mile**  
**Lower**

**MI WELLS      MI20101434**

Wellid:	33000006271	Import id:	33040216301
County:	Ingham	Township:	Lansing
Town range:	04N 02W	Section:	16
Owner name:	<b>Non-responsive</b>		
Well addr:	BWL WELL 25-13		
Well depth:	457		
Well type:	TY1PU		
Wssn:	3760		
Well num:	BWL WELL 25-13	Driller id:	729
Const date:	1944-10-17 00:00:00.000	Case type:	*U
Case dia:	14		
Case depth:	0		
Screen frm:	0		
Screen to:	0		
Swl:	999.99		
Test depth:	0		
Test hours:	0		
Test rate:	0	Test methd:	*U
Grout:	1	Pmp cpcity:	0
Latitude:	<b>Non-responsive</b>		
Longitude:			
Methd coll:	I1		
Elevation:	840.77		
Elev methd:	S1	Depth flag:	Not Reported
Elev flag:	Not Reported	Swl flag:	2
Elev dem:	836	Elev dif:	5
Elev miv:	841	Aq code:	Not Reported
Aq flag:	L	Pct aq:	0
Pct aq d:	0	Pct aq r:	0
Pct maq:	0	Pct maq d:	0
Pct maq r:	0	Pct cm:	0
Pct cm d:	0	Pct cm r:	0
Pct pcm:	0	Pct pcm d:	0
Pct pcm r:	0	Pct na:	0
Pct na d:	0	Pct na r:	0
Pct flag:	Not Reported	Rock top:	-9
D r type:	Not Reported	Spc cpcity:	0
A thicknes:	0	A pct aq:	0
A pct maq:	0	A pct pcm:	0
A pct cm:	0	A pct na:	0
A thickns2:	0	A pct aq2:	0

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

A pct maq2:	0	A pct pcm2:	0
A pct cm2:	0	A pct na2:	0
A hit swl:	F	A hit top:	T
A hit rock:	F	A sc lith1:	Not Reported
A sc lmod1:	Not Reported	A sc lmaq1:	Not Reported
A sc lpct1:	0	A sc lith2:	Not Reported
A sc lmod2:	Not Reported	A sc lmaq2:	Not Reported
A sc lpct2:	0	Pct aq 1:	0
Pct maq 1:	0	Pct cm 1:	0
Pct pcm 1:	0	Pct na 1:	0
Pct aq 2:	0	Pct maq 2:	0
Pct cm 2:	0	Pct pcm 2:	0
Pct na 2:	0	Pct aq 3:	0
Pct maq 3:	0	Pct cm 3:	0
Pct pcm 3:	0	Pct na 3:	0
Pct aq 4:	0	Pct maq 4:	0
Pct cm 4:	0	Pct pcm 4:	0
Pct na 4:	0	Pct aq 5:	0
Pct maq 5:	0	Pct cm 5:	0
Pct pcm 5:	0	Pct na 5:	0
Pct aq 6:	0	Pct maq 6:	0
Pct cm 6:	0	Pct pcm 6:	0
Pct na 6:	0	Pct aq 7:	0
Pct maq 7:	0	Pct cm 7:	0
Pct pcm 7:	0	Pct na 7:	0
Pct aq 8:	0	Pct maq 8:	0
Pct cm 8:	0	Pct pcm 8:	0
Pct na 8:	0	Pct aq 9:	0
Pct maq 9:	0	Pct cm 9:	0
Pct pcm 9:	0	Pct na 9:	0
Pct aq 10:	0	Pct maq 10:	0
Pct cm 10:	0	Pct pcm 10:	0
Pct na 10:	0	Pct aq 11:	0
Pct maq 11:	0	Pct cm 11:	0
Pct pcm 11:	0	Pct na 11:	0
Pct aq 12:	0	Pct maq 12:	0
Pct cm 12:	0	Pct pcm 12:	0
Pct na 12:	0	Pct aq 13:	0
Pct maq 13:	0	Pct cm 13:	0
Pct pcm 13:	0	Pct na 13:	0
Within sec:	Y	Loc match:	Y
Aq code 1:	Not Reported		
Hit swl:	Not Reported		
Athk2:	0		
Hcond2:	0		
Vcond2:	0		
T2:	0		
D50plek:	0		

36  
East  
1/2 - 1 Mile  
Higher

MI WELLS MI20101430

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Wellid:	33000006259	Import id:	33040215303
County:	Ingham	Township:	Lansing
Town range:	04N 02W	Section:	15
Owner name:	Non-responsive		
Well addr:	BWL WELL 30-07		
Well depth:	397		
Well type:	TY1PU		
Wssn:	3760		
Well num:	BWL WELL 30-07	Driller id:	729
Const date:	1952-06-09 00:00:00.000	Case type:	*U
Case dia:	0		
Case depth:	0		
Screen frm:	0		
Screen to:	0		
Swl:	999.99		
Test depth:	0		
Test hours:	0		
Test rate:	0	Test methd:	*U
Grout:	1	Pmp cpcty:	0
Latitude:	Non-		
Longitude:	responsive		
Methd coll:	11		
Elevation:	864.38		
Elev methd:	S1	Depth flag:	Not Reported
Elev flag:	Not Reported	Swl flag:	2
Elev dem:	859	Elev dif:	5
Elev miv:	864	Aq code:	R
Aq flag:	Not Reported	Pct aq:	60
Pct aq d:	47	Pct aq r:	64
Pct maq:	10	Pct maq d:	0
Pct maq r:	12	Pct cm:	29
Pct cm d:	53	Pct cm r:	24
Pct pcm:	0	Pct pcm d:	0
Pct pcm r:	0	Pct na:	0
Pct na d:	0	Pct na r:	0
Pct flag:	Not Reported	Rock top:	75
D r type:	AA	Spc cpcty:	0
A thicknes:	0	A pct aq:	0
A pct maq:	0	A pct pcm:	0
A pct cm:	0	A pct na:	0
A thickns2:	0	A pct aq2:	0
A pct maq2:	0	A pct pcm2:	0
A pct cm2:	0	A pct na2:	0
A hit swl:	F	A hit top:	T
A hit rock:	F	A sc lith1:	Not Reported
A sc lmod1:	Not Reported	A sc lmaq1:	Not Reported
A sc lpct1:	0	A sc lith2:	Not Reported
A sc lmod2:	Not Reported	A sc lmaq2:	Not Reported
A sc lpct2:	0	Pct aq 1:	0
Pct maq 1:	0	Pct cm 1:	100
Pct pcm 1:	0	Pct na 1:	0
Pct aq 2:	0	Pct maq 2:	0
Pct cm 2:	100	Pct pcm 2:	0
Pct na 2:	0	Pct aq 3:	100
Pct maq 3:	0	Pct cm 3:	0
Pct pcm 3:	0	Pct na 3:	0
Pct aq 4:	0	Pct maq 4:	0
Pct cm 4:	0	Pct pcm 4:	0
Pct na 4:	0	Pct aq 5:	0
Pct maq 5:	0	Pct cm 5:	0
Pct pcm 5:	0	Pct na 5:	0

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Pct aq 6:	0	Pct maq 6:	0
Pct cm 6:	0	Pct pcm 6:	0
Pct na 6:	0	Pct aq 7:	0
Pct maq 7:	0	Pct cm 7:	0
Pct pcm 7:	0	Pct na 7:	0
Pct aq 8:	0	Pct maq 8:	0
Pct cm 8:	0	Pct pcm 8:	0
Pct na 8:	0	Pct aq 9:	0
Pct maq 9:	0	Pct cm 9:	0
Pct pcm 9:	0	Pct na 9:	0
Pct aq 10:	0	Pct maq 10:	0
Pct cm 10:	0	Pct pcm 10:	0
Pct na 10:	0	Pct aq 11:	0
Pct maq 11:	0	Pct cm 11:	0
Pct pcm 11:	0	Pct na 11:	0
Pct aq 12:	0	Pct maq 12:	0
Pct cm 12:	0	Pct pcm 12:	0
Pct na 12:	0	Pct aq 13:	0
Pct maq 13:	0	Pct cm 13:	0
Pct pcm 13:	0	Pct na 13:	0
Within sec:	Y	Loc match:	Y
Aq code 1:	R		
Hit swl:	F		
Athk2:	0		
Hcond2:	190.90913		
Vcond2:	.00027		
T2:	10500.002		
D50plek:	892.87146		

37  
ESE  
1/2 - 1 Mile  
Lower

MI WELLS MI20101469

Wellid:	33000006330	Import id:	33040222310
County:	Ingham	Township:	Lansing
Town range:	04N 02W	Section:	22
Owner name:	Non-responsive		
Well addr:	BWL WELL 50-20		
Well depth:	395		
Well type:	TY1PU		
Wssn:	3760		
Well num:	BWL WELL 50-20	Driller id:	729
Const date:	1944-10-24 00:00:00.000	Case type:	*U
Case dia:	14		
Case depth:	0		
Screen frm:	0		
Screen to:	0		
Swl:	999.99		
Test depth:	0		
Test hours:	0		
Test rate:	0	Test methd:	*U
Grout:	1	Pmp cpcity:	0
Latitude:	Non-responsive		
Longitude:			

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Methd coll:	I1	Depth flag:	Not Reported
Elevation:	851.63	Swl flag:	2
Elev methd:	S1	Elev dif:	6
Elev flag:	Not Reported	Aq code:	Not Reported
Elev dem:	846	Pct aq:	0
Elev miv:	852	Pct aq r:	0
Aq flag:	L	Pct maq d:	0
Pct aq d:	0	Pct cm:	0
Pct maq:	0	Pct cm r:	0
Pct maq r:	0	Pct pcm d:	0
Pct cm d:	0	Pct na:	0
Pct pcm:	0	Pct na r:	0
Pct pcm r:	0	Rock top:	-9
Pct na d:	0	Spc cpcity:	0
Pct flag:	Not Reported	A pct aq:	0
D r type:	Not Reported	A pct pcm:	0
A thicknes:	0	A pct na:	0
A pct maq:	0	A pct aq2:	0
A pct cm:	0	A pct pcm2:	0
A thickns2:	0	A pct na2:	0
A pct maq2:	0	A hit top:	T
A pct cm2:	0	A sc lith1:	Not Reported
A hit swl:	F	A sc lmaq1:	Not Reported
A hit rock:	F	A sc lith2:	Not Reported
A sc lmod1:	Not Reported	A sc lmaq2:	Not Reported
A sc lpct1:	0	Pct aq 1:	0
A sc lmod2:	Not Reported	Pct cm 1:	0
A sc lpct2:	0	Pct na 1:	100
Pct maq 1:	0	Pct maq 2:	0
Pct pcm 1:	0	Pct pcm 2:	0
Pct aq 2:	0	Pct aq 3:	0
Pct cm 2:	0	Pct cm 3:	0
Pct na 2:	0	Pct na 3:	0
Pct maq 3:	0	Pct maq 4:	0
Pct pcm 3:	0	Pct pcm 4:	0
Pct aq 4:	0	Pct aq 5:	0
Pct cm 4:	0	Pct cm 5:	0
Pct na 4:	0	Pct na 5:	0
Pct maq 5:	0	Pct maq 6:	0
Pct pcm 5:	0	Pct pcm 6:	0
Pct aq 6:	0	Pct aq 7:	0
Pct cm 6:	0	Pct cm 7:	0
Pct na 6:	0	Pct na 7:	0
Pct maq 7:	0	Pct maq 8:	0
Pct pcm 7:	0	Pct pcm 8:	0
Pct aq 8:	0	Pct aq 9:	0
Pct cm 8:	0	Pct cm 9:	0
Pct na 8:	0	Pct na 9:	0
Pct maq 9:	0	Pct maq 10:	0
Pct pcm 9:	0	Pct pcm 10:	0
Pct aq 10:	0	Pct aq 11:	0
Pct cm 10:	0	Pct cm 11:	0
Pct na 10:	0	Pct na 11:	0
Pct maq 11:	0	Pct maq 12:	0
Pct pcm 11:	0	Pct pcm 12:	0
Pct aq 12:	0	Pct aq 13:	0
Pct cm 12:	0	Pct cm 13:	0
Pct na 12:	0	Pct na 13:	0
Pct maq 13:	0		
Pct pcm 13:	0		

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Within sec:	Y	Loc match:	Y
Aq code 1:	Not Reported		
Hit swl:	Not Reported		
Athk2:	0		
Hcond2:	0		
Vcond2:	0		
T2:	0		
D50plek:	0		

38  
ESE  
1/2 - 1 Mile  
Lower

MI WELLS MI20101472

Wellid:	33000006333	Import id:	33040222313
County:	Ingham	Township:	Lansing
Town range:	04N 02W	Section:	21
Owner name:	Non-responsive		
Well addr:	BWL WELL 50-21		
Well depth:	464		
Well type:	TY1PU		
Wssn:	3760		
Well num:	BWL WELL 50-21	Driller id:	729
Const date:	1944-10-17 00:00:00.000	Case type:	*U
Case dia:	14		
Case depth:	0		
Screen frm:	0		
Screen to:	0		
Swl:	999.99		
Test depth:	0		
Test hours:	0		
Test rate:	0	Test methd:	*U
Grout:	1	Pmp cpcity:	0
Latitude:	Non-responsive		
Longitude:			
Methd coll:	I1		
Elevation:	828		
Elev methd:	T1	Depth flag:	Not Reported
Elev flag:	Not Reported	Swl flag:	2
Elev dem:	827	Elev dif:	1
Elev miv:	828	Aq code:	R
Aq flag:	Not Reported	Pct aq:	89
Pct aq d:	100	Pct aq r:	88
Pct maq:	0	Pct maq d:	0
Pct maq r:	0	Pct cm:	11
Pct cm d:	0	Pct cm r:	12
Pct pcm:	0	Pct pcm d:	0
Pct pcm r:	0	Pct na:	0
Pct na d:	0	Pct na r:	0
Pct flag:	Not Reported	Rock top:	45
D r type:	AA	Spc cpcity:	0
A thicknes:	0	A pct aq:	0
A pct maq:	0	A pct pcm:	0
A pct cm:	0	A pct na:	0
A thickns2:	0	A pct aq2:	0



# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

A pct maq2:	0	A pct pcm2:	0
A pct cm2:	0	A pct na2:	0
A hit swl:	F	A hit top:	T
A hit rock:	F	A sc lith1:	Not Reported
A sc lmod1:	Not Reported	A sc lmaq1:	Not Reported
A sc lpct1:	0	A sc lith2:	Not Reported
A sc lmod2:	Not Reported	A sc lmaq2:	Not Reported
A sc lpct2:	0	Pct aq 1:	100
Pct maq 1:	0	Pct cm 1:	0
Pct pcm 1:	0	Pct na 1:	0
Pct aq 2:	100	Pct maq 2:	0
Pct cm 2:	0	Pct pcm 2:	0
Pct na 2:	0	Pct aq 3:	0
Pct maq 3:	0	Pct cm 3:	0
Pct pcm 3:	0	Pct na 3:	0
Pct aq 4:	0	Pct maq 4:	0
Pct cm 4:	0	Pct pcm 4:	0
Pct na 4:	0	Pct aq 5:	0
Pct maq 5:	0	Pct cm 5:	0
Pct pcm 5:	0	Pct na 5:	0
Pct aq 6:	0	Pct maq 6:	0
Pct cm 6:	0	Pct pcm 6:	0
Pct na 6:	0	Pct aq 7:	0
Pct maq 7:	0	Pct cm 7:	0
Pct pcm 7:	0	Pct na 7:	0
Pct aq 8:	0	Pct maq 8:	0
Pct cm 8:	0	Pct pcm 8:	0
Pct na 8:	0	Pct aq 9:	0
Pct maq 9:	0	Pct cm 9:	0
Pct pcm 9:	0	Pct na 9:	0
Pct aq 10:	0	Pct maq 10:	0
Pct cm 10:	0	Pct pcm 10:	0
Pct na 10:	0	Pct aq 11:	0
Pct maq 11:	0	Pct cm 11:	0
Pct pcm 11:	0	Pct na 11:	0
Pct aq 12:	0	Pct maq 12:	0
Pct cm 12:	0	Pct pcm 12:	0
Pct na 12:	0	Pct aq 13:	0
Pct maq 13:	0	Pct cm 13:	0
Pct pcm 13:	0	Pct na 13:	0
Within sec:	Y	Loc match:	Y
Aq code 1:	R		
Hit swl:	F		
Athk2:	0		
Hcond2:	50		
Vcond2:	50		
T2:	1250		
D50plek:	53.73235		

39  
NW  
1/2 - 1 Mile  
Higher

FED USGS USGS2318043

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Agency cd: USGS Site no: 424424084340301  
 Site name: 04N 02W 17ABAA 01 INGHAM CO (LOGAN)  
 Latitude: Non-responsive Dec lat: Non-responsive  
 Longitude: Non-responsive Coor meth: M  
 Dec lon: Non-responsive Latlong datum: NAD27  
 Coor accr: F District: 26  
 Dec latlong datum: NAD83 County: 065  
 State: 26 Land net: 04N 02W 17ABAA01  
 Country: US Map scale: 24000  
 Location map: LANSING SOUTH  
 Altitude: 858.72  
 Altitude method: Level or other surveying method  
 Altitude accuracy: .01  
 Altitude datum: National Geodetic Vertical Datum of 1929  
 Hydrologic: Upper Grand. Michigan. Area = 1730 sq.mi.  
 Topographic: Flat surface  
 Site type: Ground-water other than Spring Date construction: Not Reported  
 Date inventoried: Not Reported Mean greenwich time offset: EST  
 Local standard time flag: N  
 Type of ground water site: Single well, other than collector or Ranney type  
 Aquifer Type: Not Reported  
 Aquifer: SAGINAW FORMATION  
 Well depth: 424 Hole depth: Not Reported  
 Source of depth data: Not Reported  
 Project number: 442600200  
 Real time data flag: 0  
 Daily flow data begin date: 0000-00-00  
 Daily flow data end date: 0000-00-00  
 Peak flow data begin date: 0000-00-00  
 Peak flow data count: 0  
 Water quality data begin date: 0000-00-00  
 Water quality data end date: 0000-00-00  
 Ground water data begin date: 2002-09-12  
 Ground water data end date: 2005-01-28  
 Ground water data count: 23

## Ground-water levels, Number of Measurements: 23

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
2005-01-28	83.06		2004-12-17	83.27	
2004-11-05	83.90		2004-09-16	84.05	
2004-07-30	83.30		2004-06-04	83.50	
2004-05-12	82.73		2004-05-12	82.71	
2004-04-16	81.25		2004-03-04	80.84	
2004-01-14	77.60		2003-11-24	78.75	
2003-10-02	81.42		2003-08-25	81.99	
2003-08-22	81.75		2003-06-30	77.83	
2003-05-08	71.96		2003-03-28	70.21	
2003-02-18	70.43		2003-01-09	69.37	
2002-11-19	70.31		2002-10-09	72.90	
2002-09-12	74.17				

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS RADON

### AREA RADON INFORMATION

Federal EPA Radon Zone for INGHAM County: 2

Note: Zone 1 indoor average level > 4 pCi/L.

: Zone 2 indoor average level  $\geq 2$  pCi/L and  $\leq 4$  pCi/L.

: Zone 3 indoor average level < 2 pCi/L.

---

Federal Area Radon Information for INGHAM COUNTY, MI

Number of sites tested: 38

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	2.120 pCi/L	80%	20%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	3.595 pCi/L	84%	13%	3%

# PHYSICAL SETTING SOURCE RECORDS SEARCHED

## TOPOGRAPHIC INFORMATION

### **USGS 7.5' Digital Elevation Model (DEM)**

Source: United States Geologic Survey

EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

## HYDROLOGIC INFORMATION

**Flood Zone Data:** This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

**NWI:** National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

### **State Wetlands Data: Wetlands Inventory**

Source: Department of Natural Resources

Telephone: 517-241-2254

## HYDROGEOLOGIC INFORMATION

### **AQUIFLOW<sup>R</sup> Information System**

Source: EDR proprietary database of groundwater flow information

EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

## GEOLOGIC INFORMATION

### **Geologic Age and Rock Stratigraphic Unit**

Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

### **STATSGO: State Soil Geographic Database**

Source: Department of Agriculture, Natural Resources Conservation Services

The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

### **SSURGO: Soil Survey Geographic Database**

Source: Department of Agriculture, Natural Resources Conservation Services (NRCS)

Telephone: 800-672-5559

SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Services, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

# PHYSICAL SETTING SOURCE RECORDS SEARCHED

## LOCAL / REGIONAL WATER AGENCY RECORDS

### FEDERAL WATER WELLS

#### **PWS:** Public Water Systems

Source: EPA/Office of Drinking Water

Telephone: 202-564-3750

Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

#### **PWS ENF:** Public Water Systems Violation and Enforcement Data

Source: EPA/Office of Drinking Water

Telephone: 202-564-3750

Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

#### **USGS Water Wells:** USGS National Water Inventory System (NWIS)

This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

### STATE RECORDS

#### **Water Well Data**

Source: Department of Environmental Quality

Telephone: 517-335-9218

## OTHER STATE DATABASE INFORMATION

#### **Michigan Oil and Gas Wells**

Source: Michigan Department of Natural Resources

Locations of oil and gas wells are compiled from permit records on file at the Geological Survey Division (GSD), Michigan Department of Natural Resources.

### RADON

#### **State Database: MI Radon**

Source: Department of Environmental Quality

Telephone: 517-335-9551

Radon Test Results

#### **Michigan Radon Test Results**

Source: Department of Environmental Quality

Telephone: 517-335-8037

These results are from test kits distributed by the local health departments and used by Michigan residents. There is no way of knowing whether the devices were used properly, whether there are duplicates (or repeat verification) test (i.e., more than one sample per home), etc.

#### **Area Radon Information**

Source: USGS

Telephone: 703-356-4020

The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

#### **EPA Radon Zones**

Source: EPA

Telephone: 703-356-4020

Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

## PHYSICAL SETTING SOURCE RECORDS SEARCHED

### OTHER

**Airport Landing Facilities:** Private and public use landing facilities

Source: Federal Aviation Administration, 800-457-6656

**Epicenters:** World earthquake epicenters, Richter 5 or greater

Source: Department of Commerce, National Oceanic and Atmospheric Administration

### STREET AND ADDRESS INFORMATION

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**APPENDIX E**

**AERIAL PHOTOGRAPH DOCUMENTATION**



**EDR®** Environmental  
Data Resources Inc

## **The EDR Aerial Photo Decade Package**

**Former YMCA  
301 W. Lenawee St.  
Lansing, MI 48933**

**Inquiry Number: 2069190.4**

**November 05, 2007**

## **The Standard in Environmental Risk Information**

**440 Wheelers Farms Road  
Milford, Connecticut 06461**

### **Nationwide Customer Service**

Telephone: 1-800-352-0050  
Fax: 1-800-231-6802  
Internet: [www.edrnet.com](http://www.edrnet.com)



# EDR Aerial Photo Decade Package

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDRs professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

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***Thank you for your business.***  
Please contact EDR at 1-800-352-0050  
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**Date EDR Searched Historical Sources:**

Aerial Photography November 05, 2007

**Target Property:**

301 W. Lenawee St.

Lansing, MI 48933

<u><i>Year</i></u>	<u><i>Scale</i></u>	<u><i>Details</i></u>	<u><i>Source</i></u>
1938	Aerial Photograph. Scale: 1"=500'	Flight Year: 1938	AAA
1950	Aerial Photograph. Scale: 1"=500'	Flight Year: 1950	PMA
1955	Aerial Photograph. Scale: 1"=500'	Flight Year: 1955	CSS
1963	Aerial Photograph. Scale: 1"=500'	Flight Year: 1963	ASCS
1970	Aerial Photograph. Scale: 1"=600'	Flight Year: 1970	ASCS
1981	Aerial Photograph. Scale: 1"=600'	Flight Year: 1981	ASCS
1991	Aerial Photograph. Scale: 1"=500'	Flight Year: 1991	Tri Co. Regional Planning
1995	Aerial Photograph. Scale: 1"=500'	Flight Year: 1995	Tri Co. Regional Planning

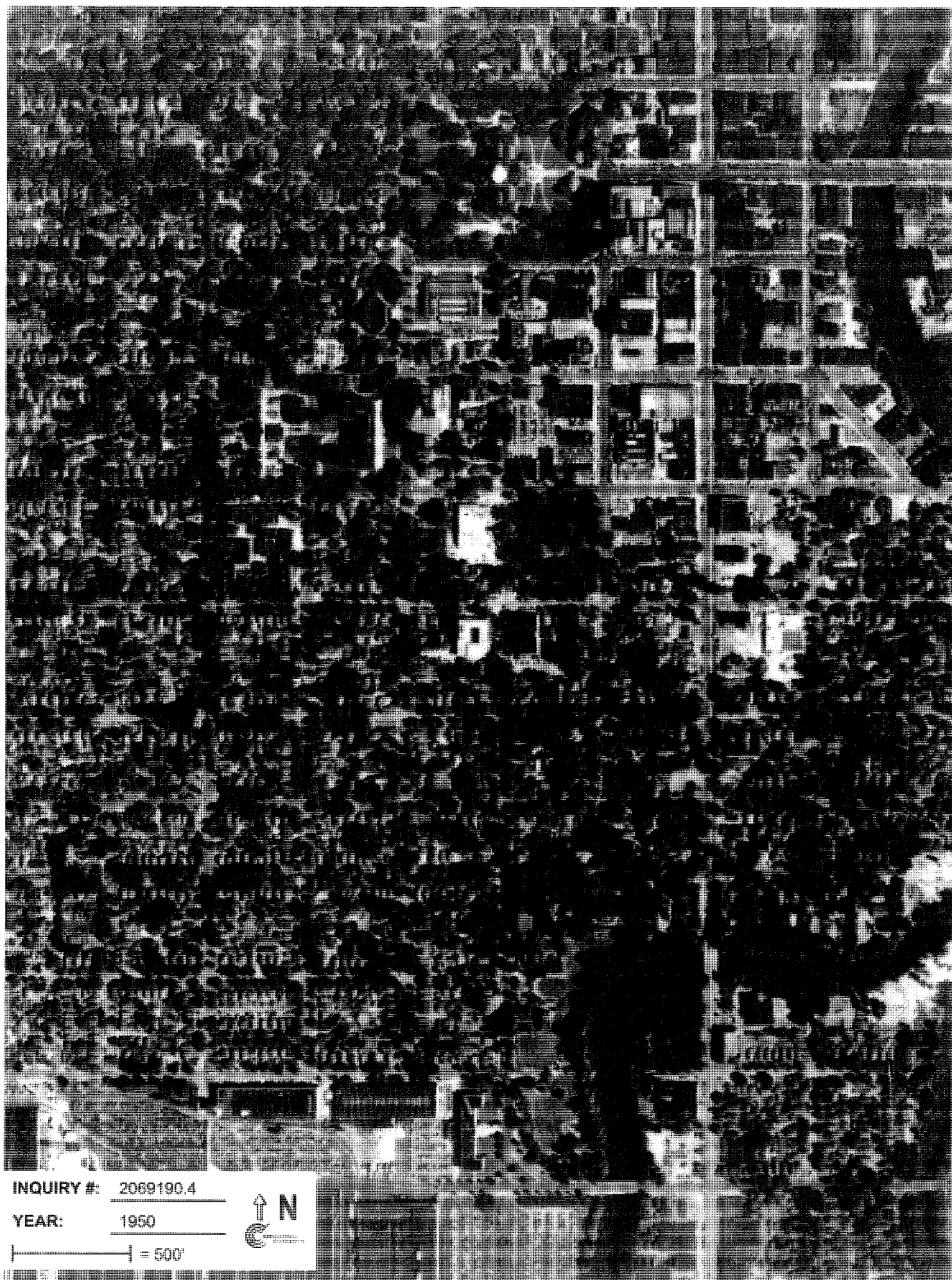


INQUIRY #: 2069190.4

YEAR: 1938

| = 500'





INQUIRY #: 2069190.4

YEAR: 1950

| = 500'







INQUIRY #: 2089190.4

YEAR: 1955

— = 500'





INQUIRY #: 2069190.4

YEAR: 1963

| = 500'







INQUIRY #: 2069190.4

YEAR: 1970

| = 600'







INQUIRY #: 2069190.4

YEAR: 1981

| = 600'







INQUIRY #: 2069190.4

YEAR: 1991

— = 500'





INQUIRY #: 2069190.4

YEAR: 1995

| = 500'



**APPENDIX F**

**HISTORICAL RESEARCH DOCUMENTATION**

## Certified Sanborn® Map Report

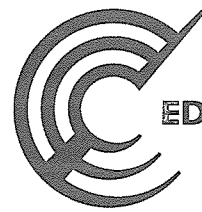


Sanborn® Library search results  
Certification # F7A6-4362-BDA3

**Former YMCA  
301 W. Lenawee St.  
Lansing, MI 48933**

**Inquiry Number 2069190.3s**

**November 07, 2007**



**EDR®** Environmental  
Data Resources Inc

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## Certified Sanborn® Map Report

11/07/07

**Site Name:**

Former YMCA  
301 W. Lenawee St.  
Lansing, MI 48933

**Client Name:**

AKT Peerless Environmental  
115 West Allegan  
Lansing, MI 48901

EDR Inquiry # 2069190.3s

Contact: Stephanie Smith



**EDR® Environmental  
Data Resources Inc**

The complete Sanborn Library collection has been searched by EDR, and fire insurance maps covering the target property location provided by AKT Peerless Environmental Svc were identified for the years listed below. The certified Sanborn Library search results in this report can be authenticated by visiting [www.edrnet.com/sanborn](http://www.edrnet.com/sanborn) and entering the certification number. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by Sanborn Library LLC, the copyright holder for the collection.

### Certified Sanborn Results:

**Site Name:** Former YMCA  
**Address:** 301 W. Lenawee St.  
**City, State, Zip:** Lansing, MI 48933  
**Cross Street:**  
**P.O. #** NA  
**Project:** 05700-2-17  
**Certification #** F7A6-4362-BDA3



Sanborn® Library search results  
Certification # F7A6-4362-BDA3

#### Maps Identified - Number of maps indicated within "( )"

1972 (3)    1898 (2)  
1966 (3)    1892 (1)  
1953 (3)  
1951 (3)  
1913 (3)  
1906 (2)

Total Maps: 20

The Sanborn Library includes more than 1.2 million Sanborn fire insurance maps, which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ☒ Library of Congress
- ☒ University Publications of America
- ☒ EDR Private Collection

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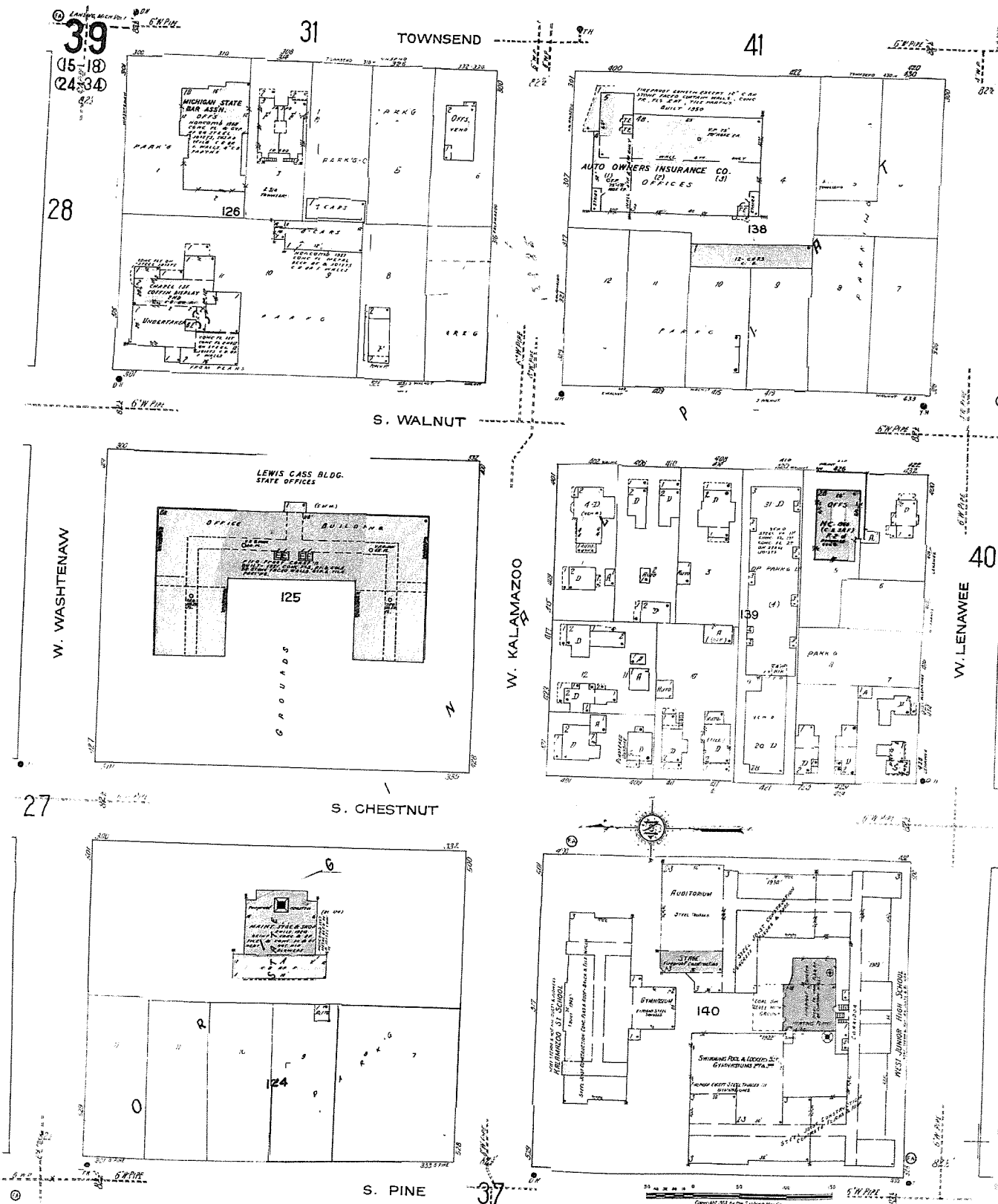
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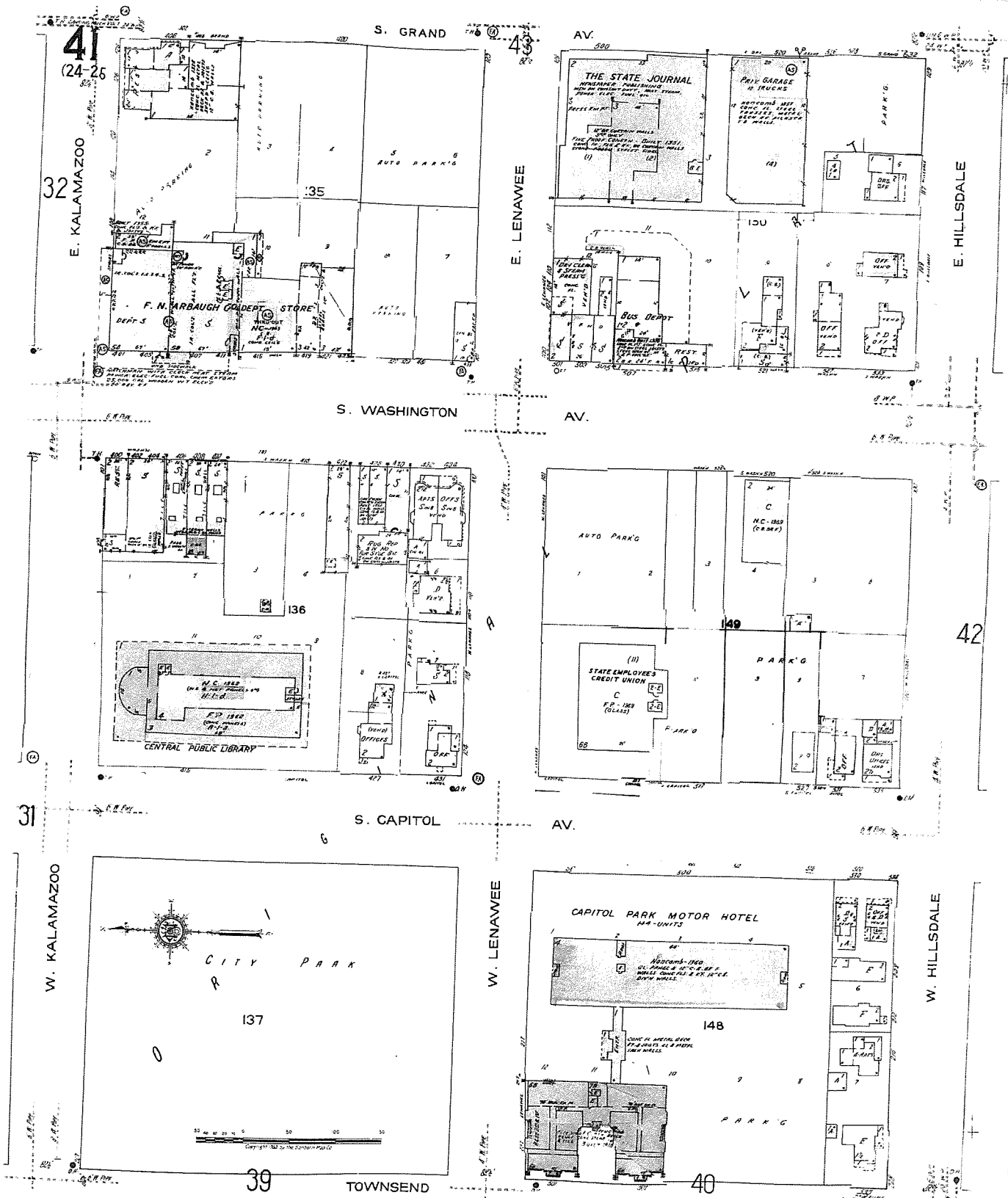


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Order Date: 11/17/2007 12:36:32 PM  
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Research Associate: HNS  
Copyright: 1972





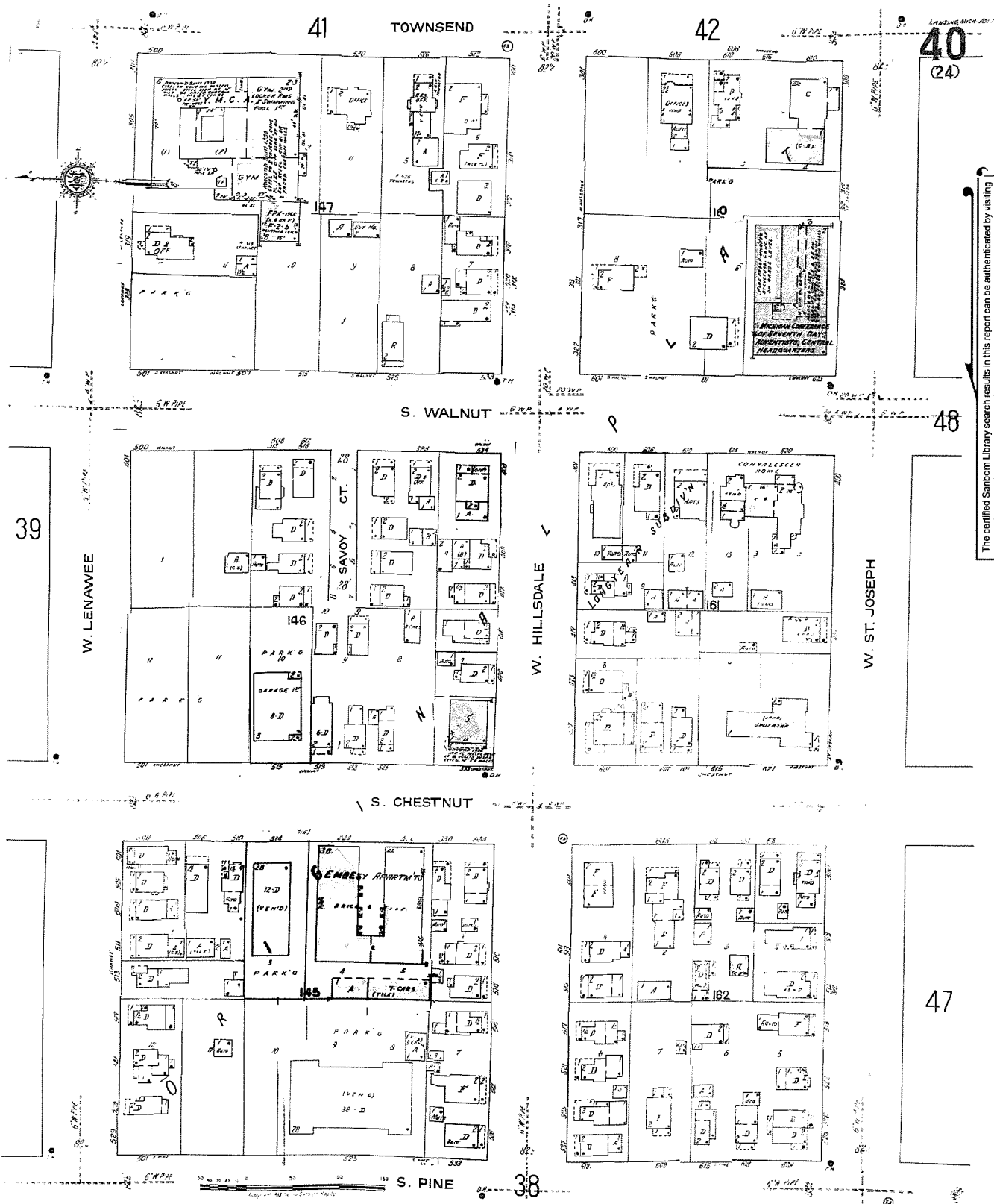
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Research Associate: HNS Copyright: 1972



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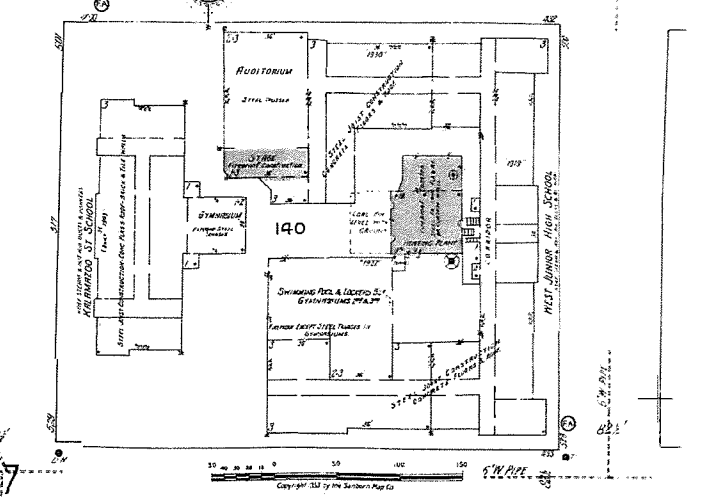
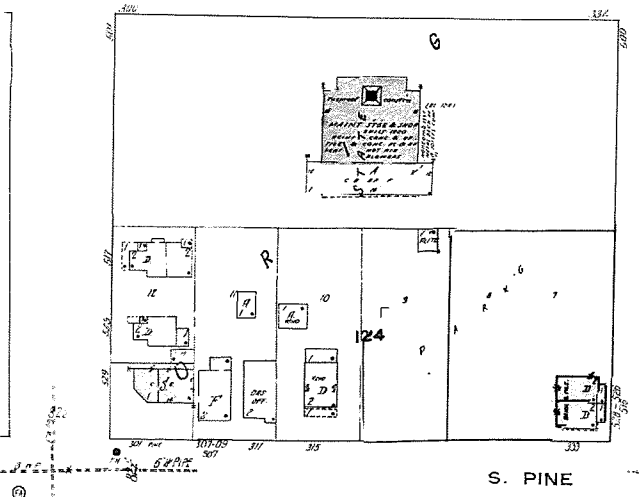
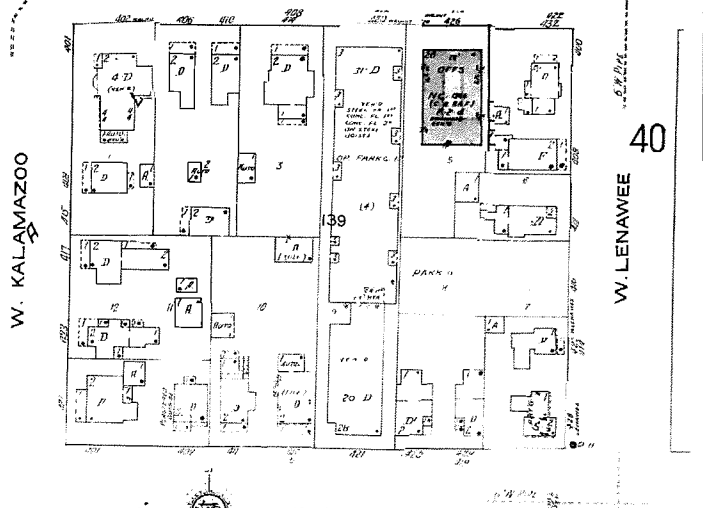
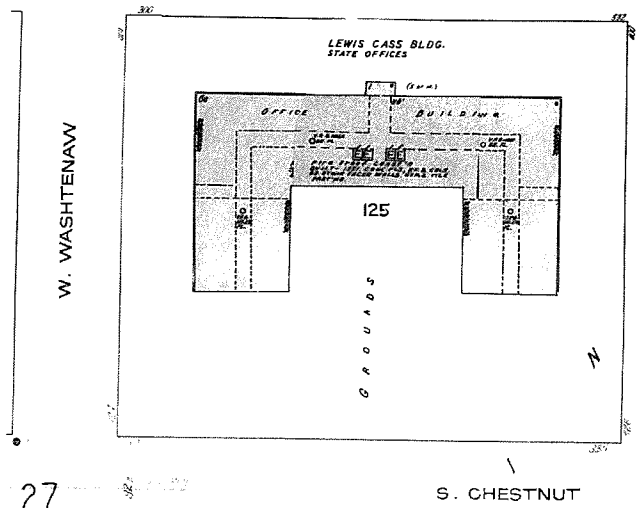
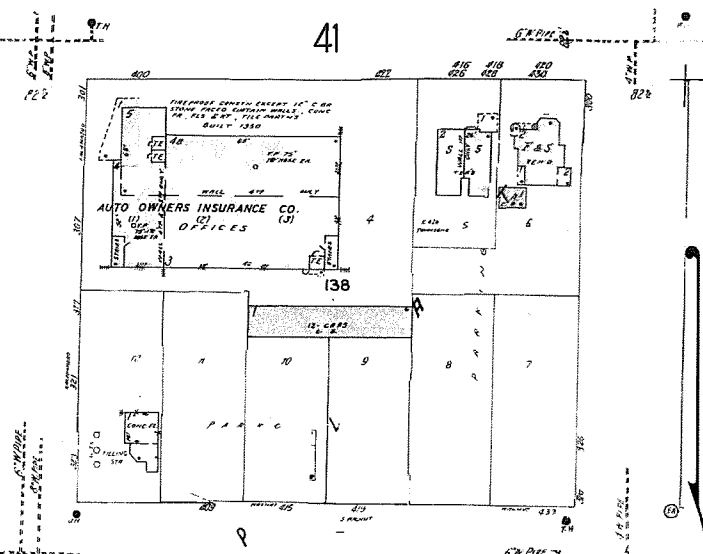
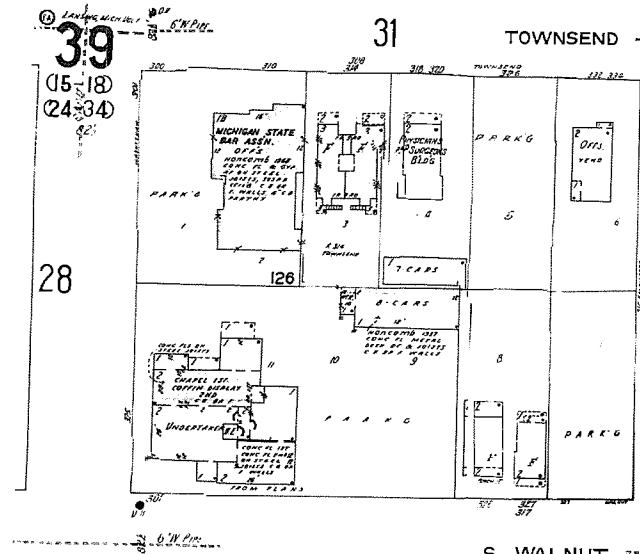
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Research Associate: HNS

Copyright: 1972







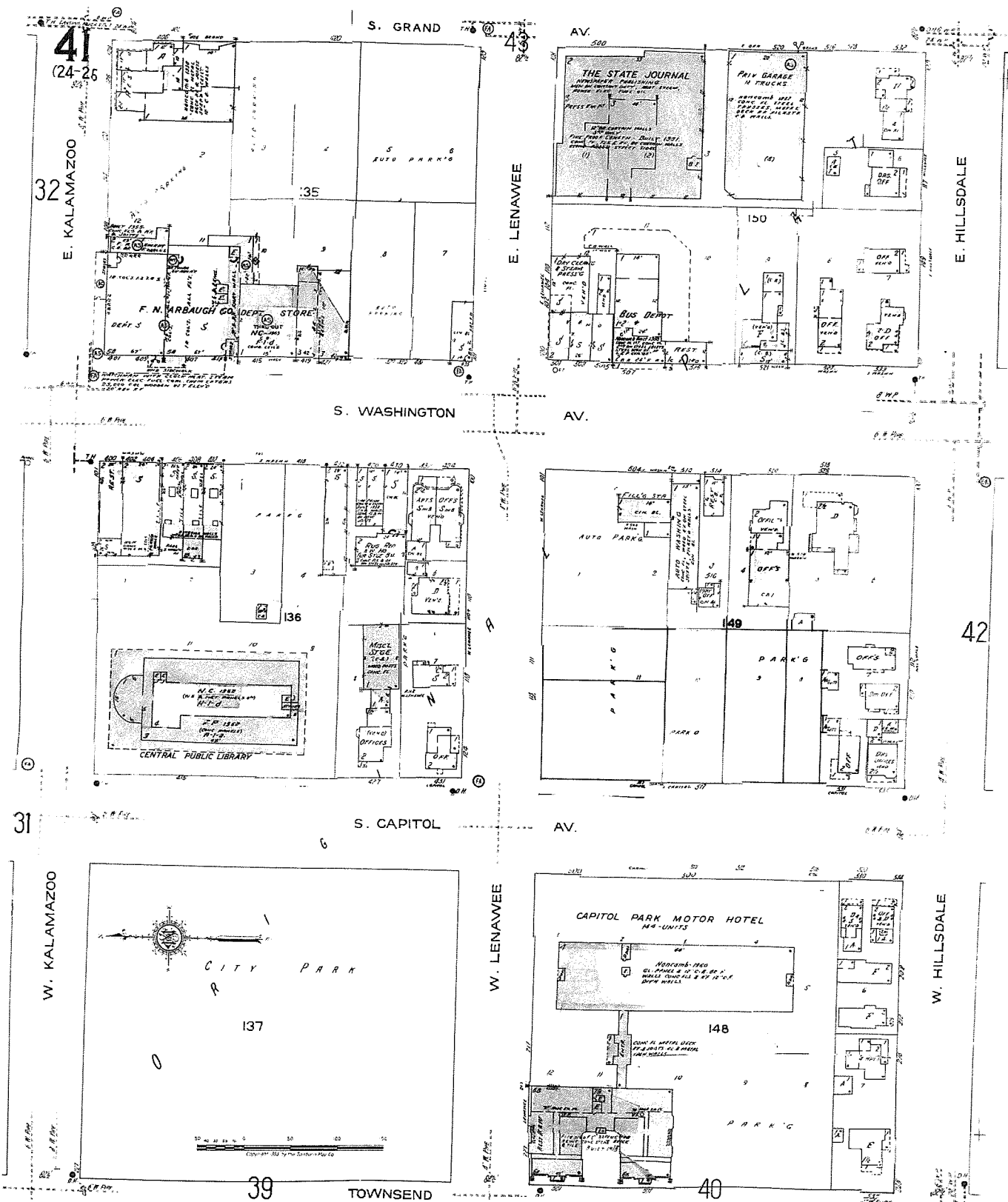
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 Research Associate: HNS Copyright: 1966





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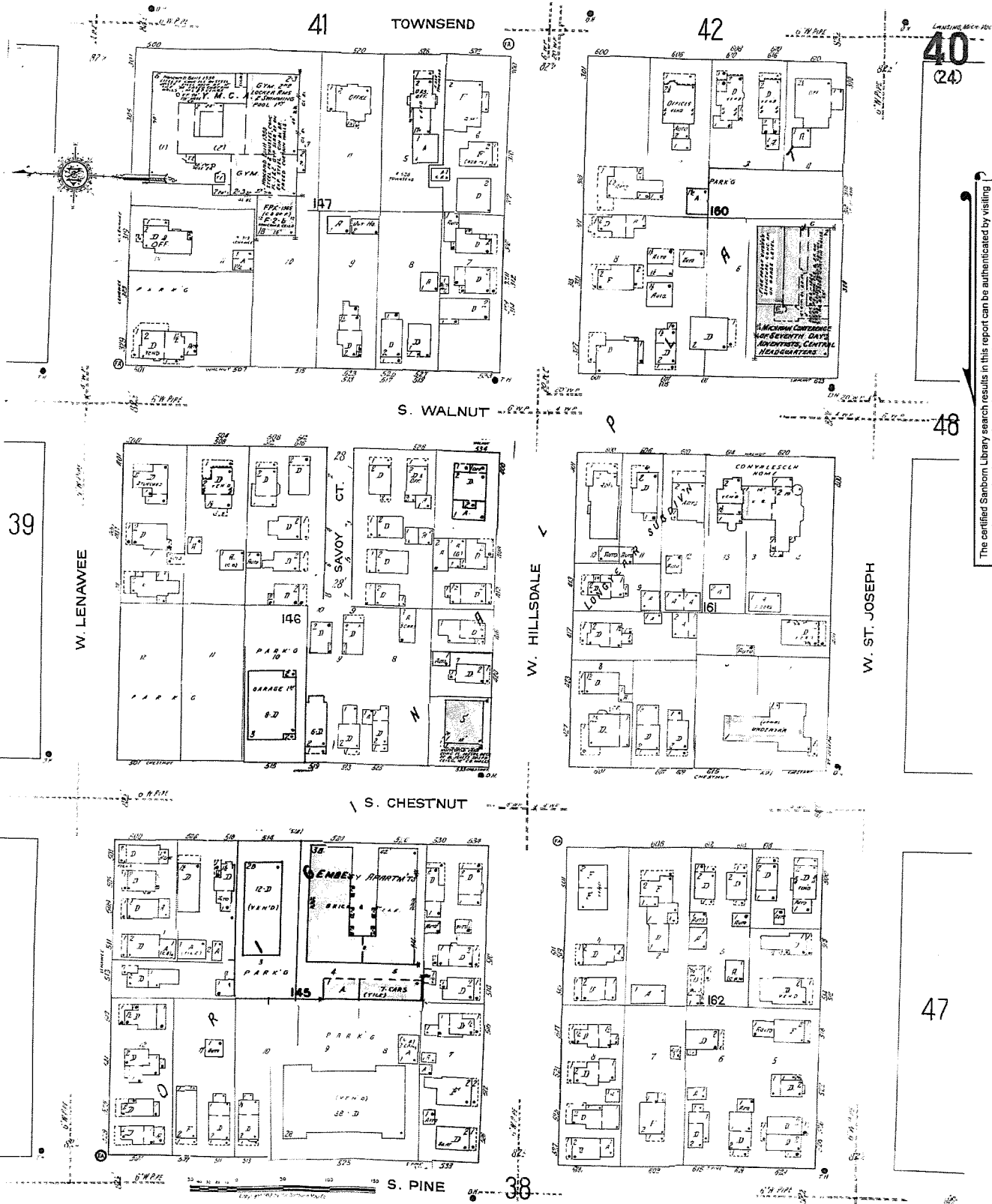
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Research Associate: HNS Copyright: 1996



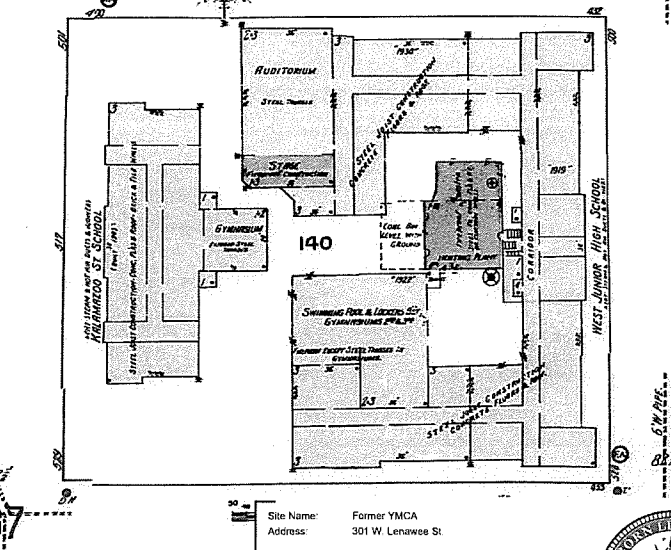
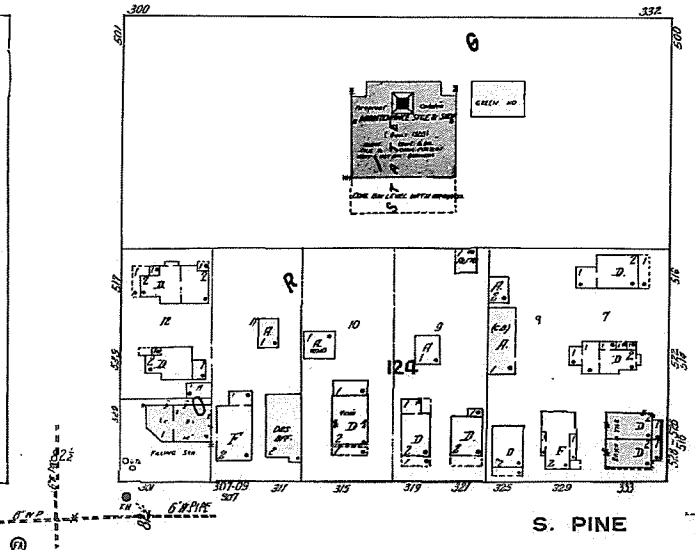
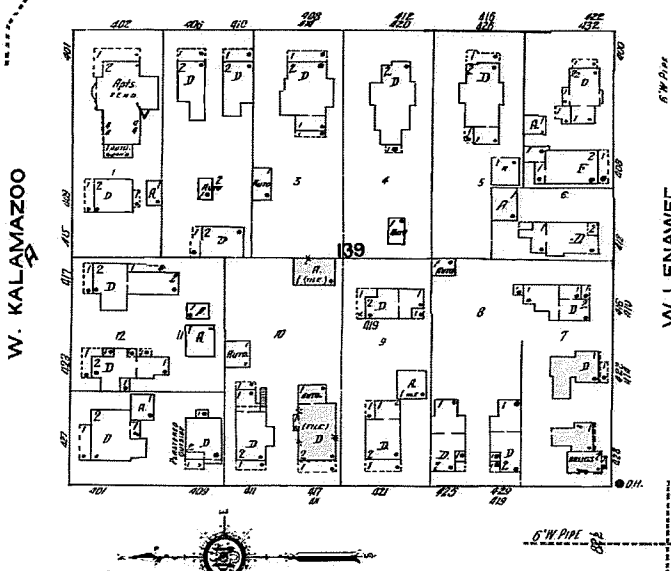
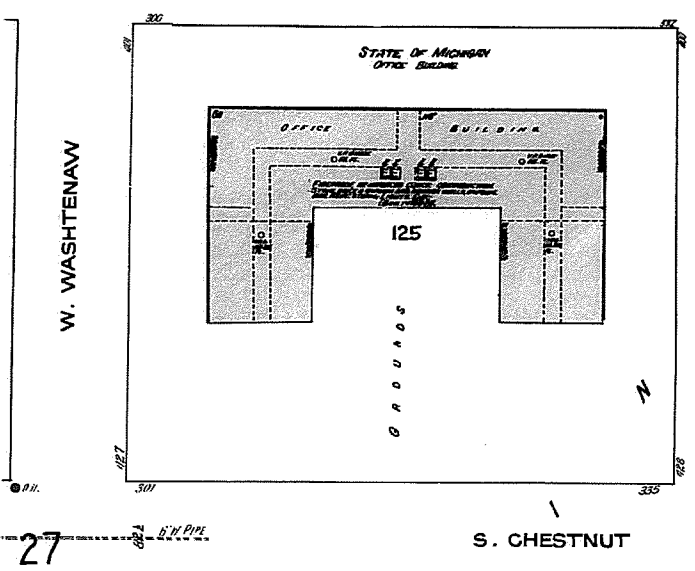
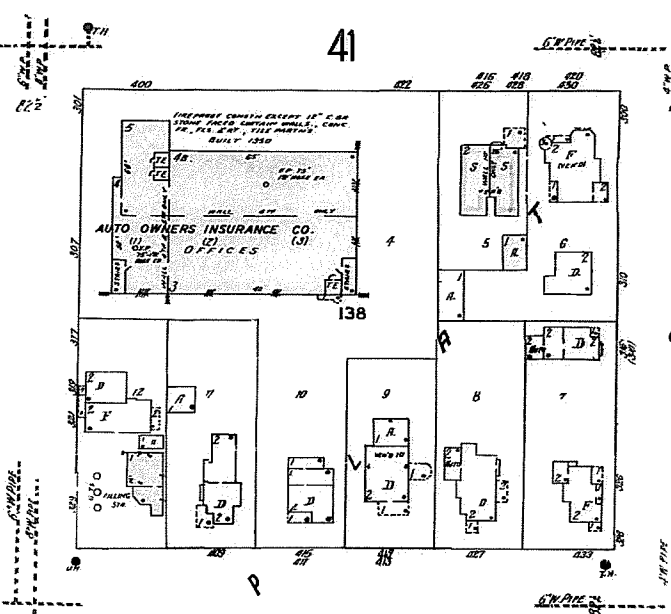
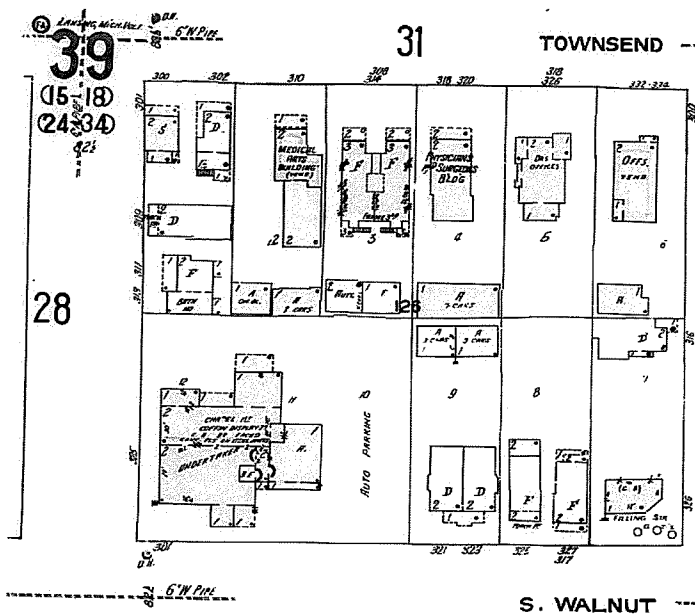


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Research Associate: HNS Copyright: 1966



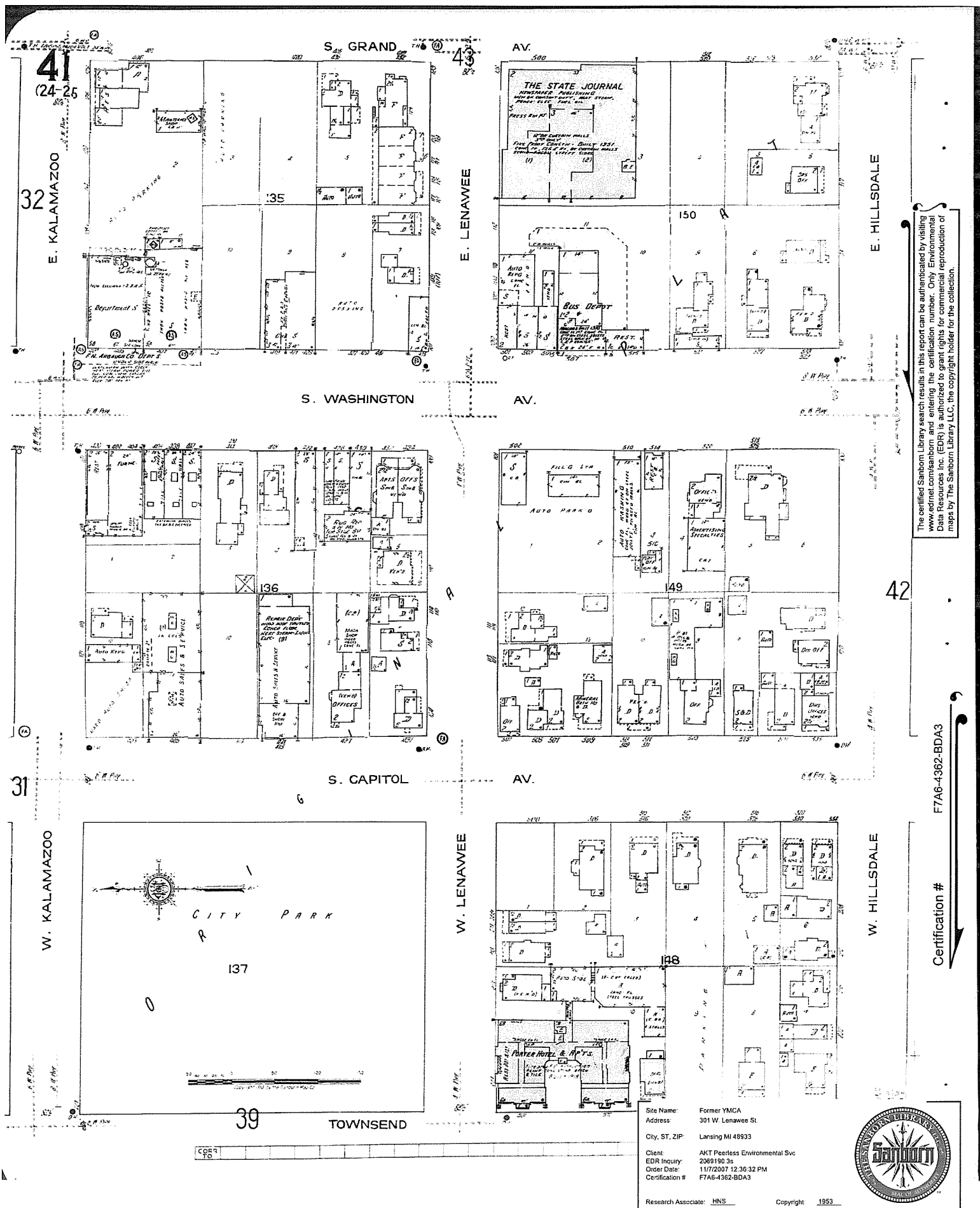
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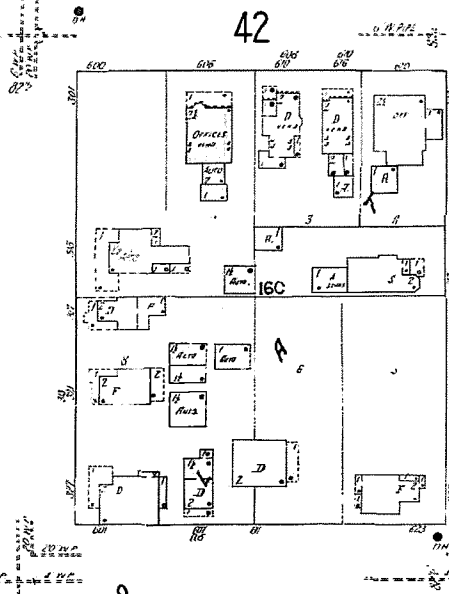
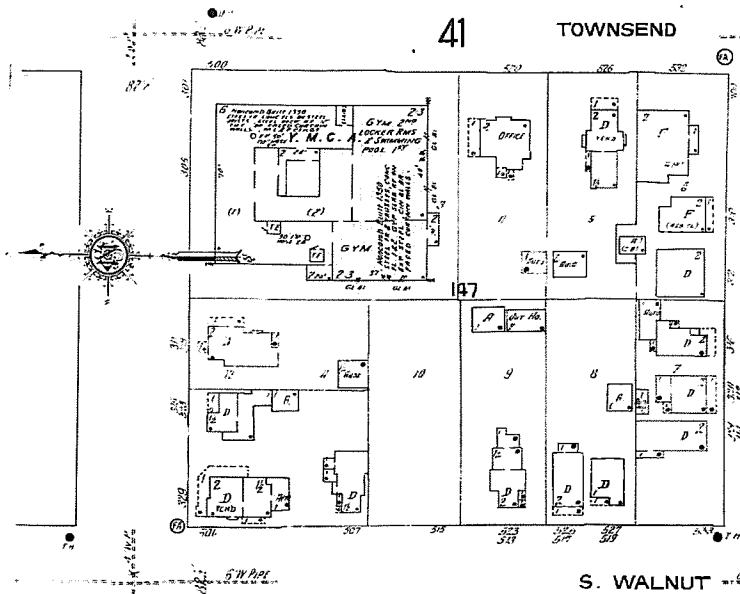
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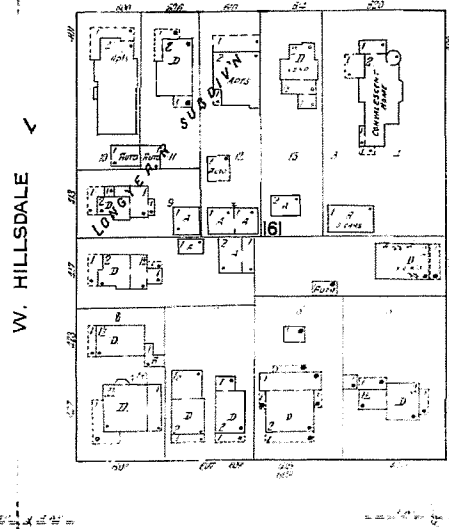
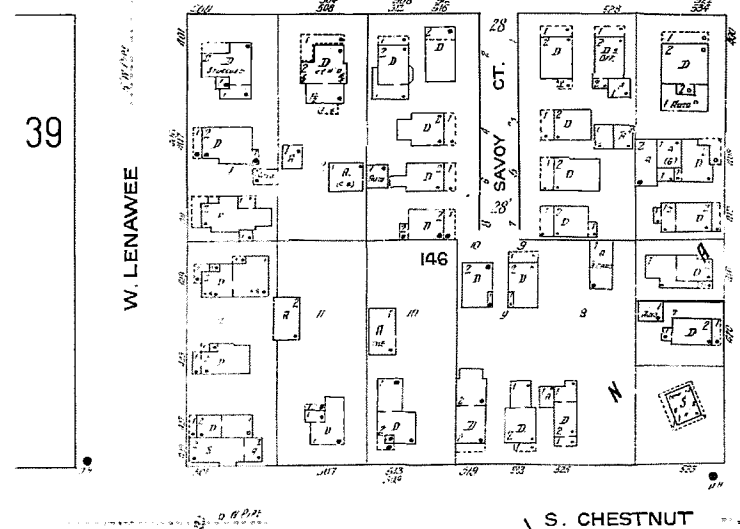




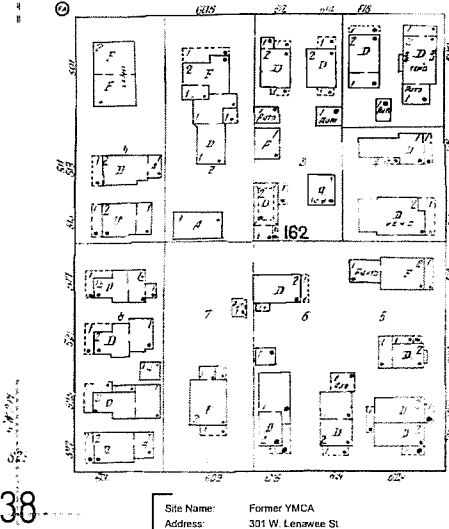
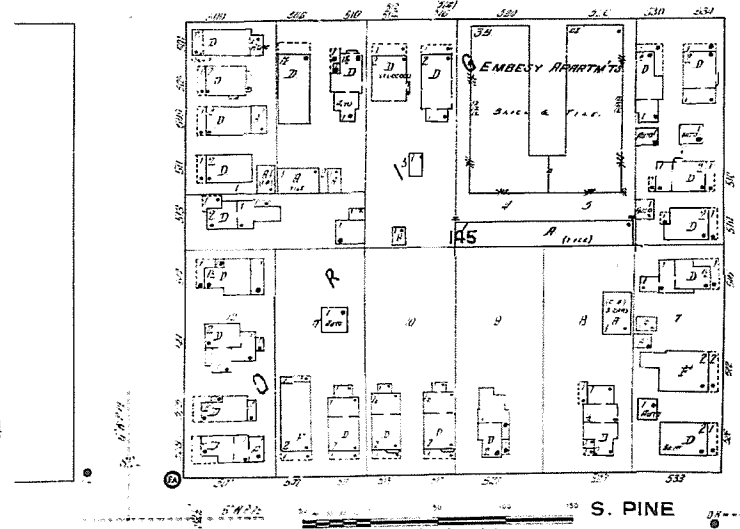


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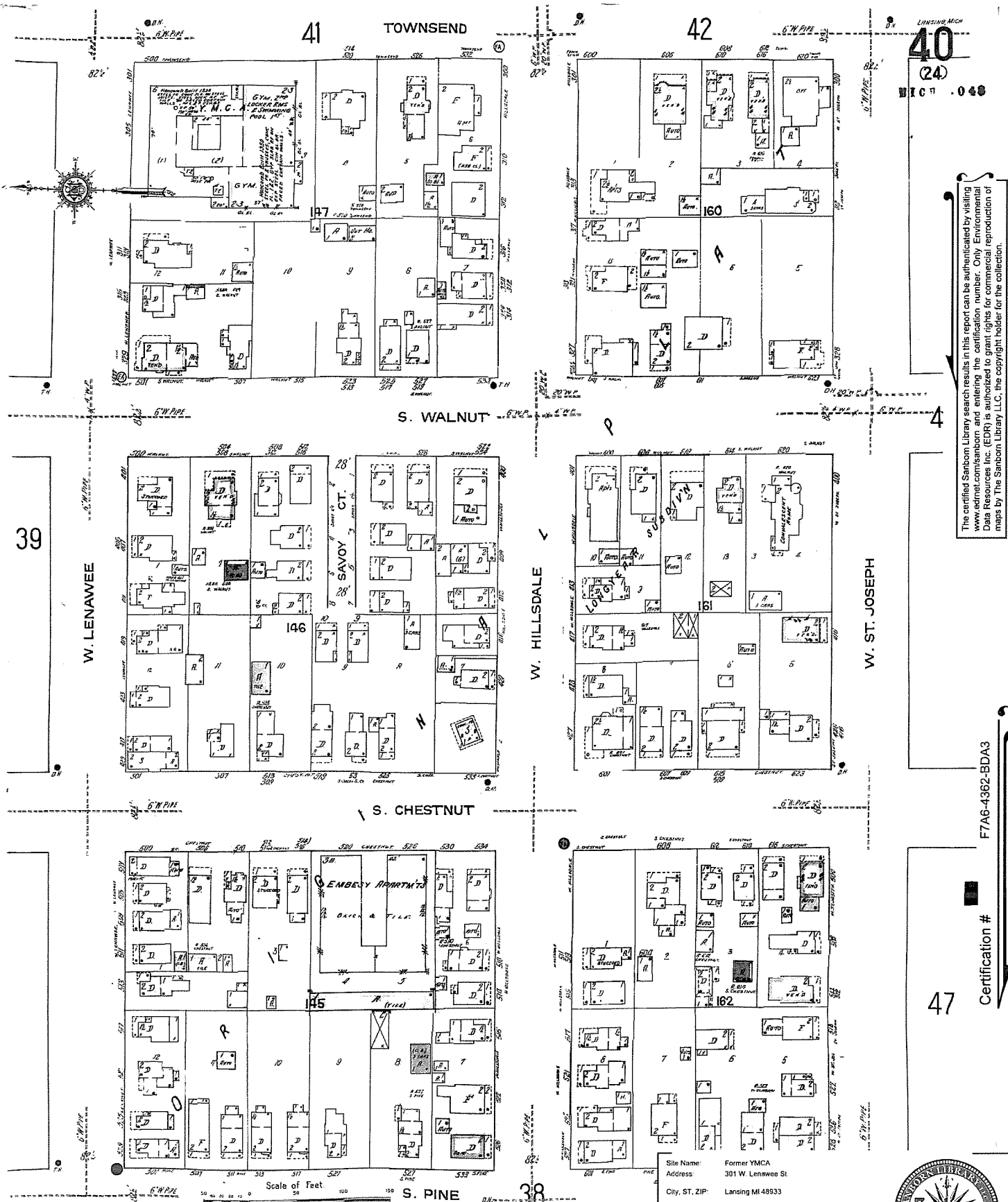
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 Research Associate: HNS Copyright: 1953



F7A6-4362-BDA3

Certification #

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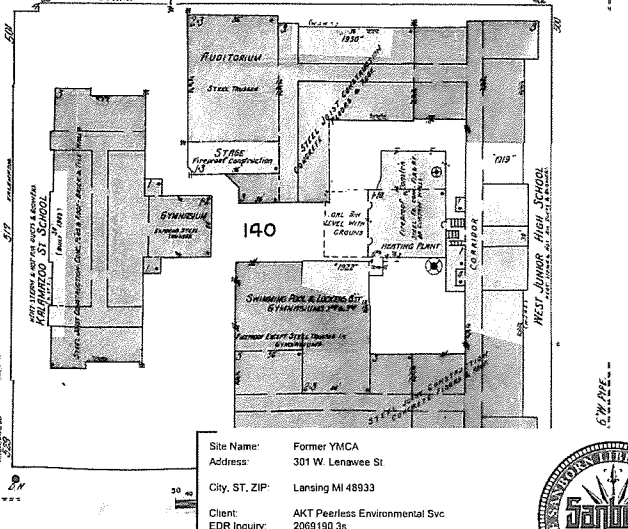
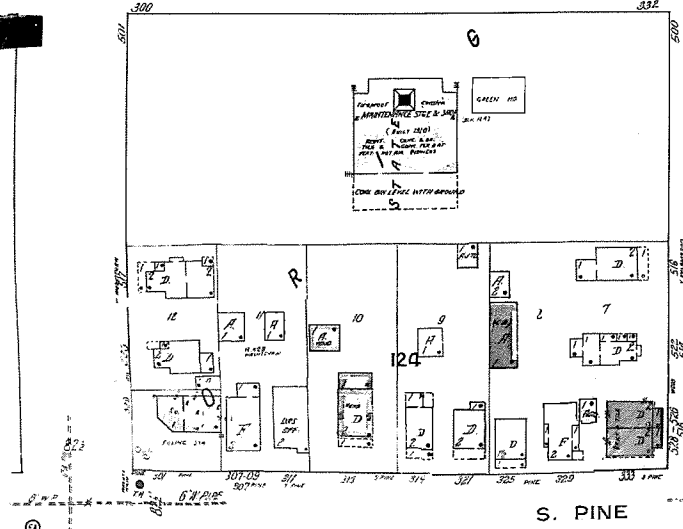
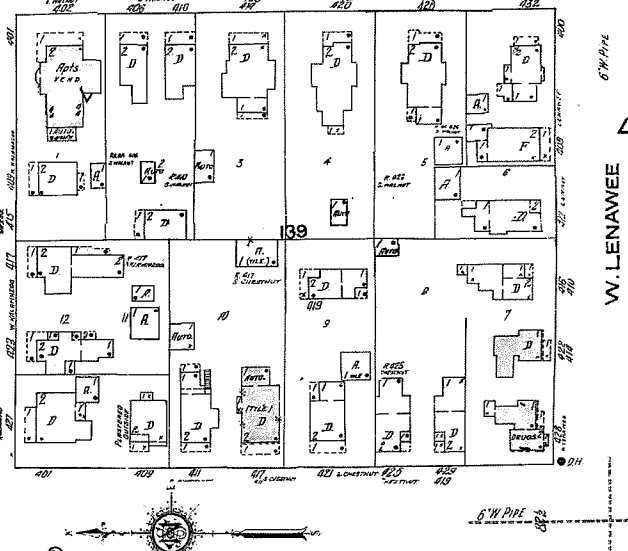
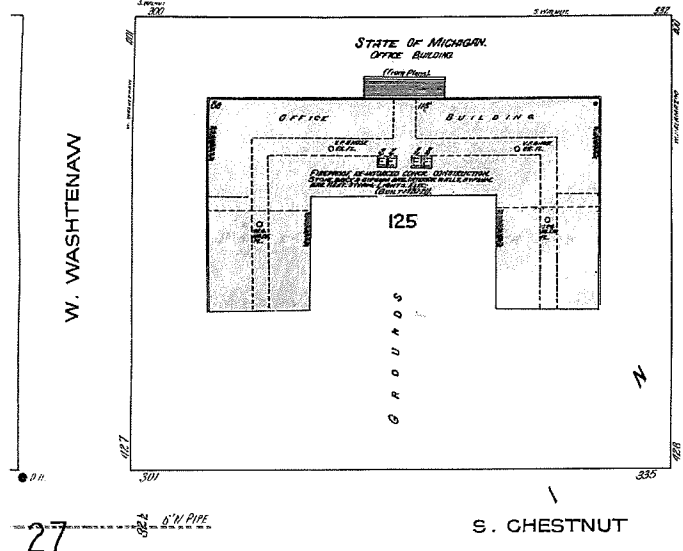
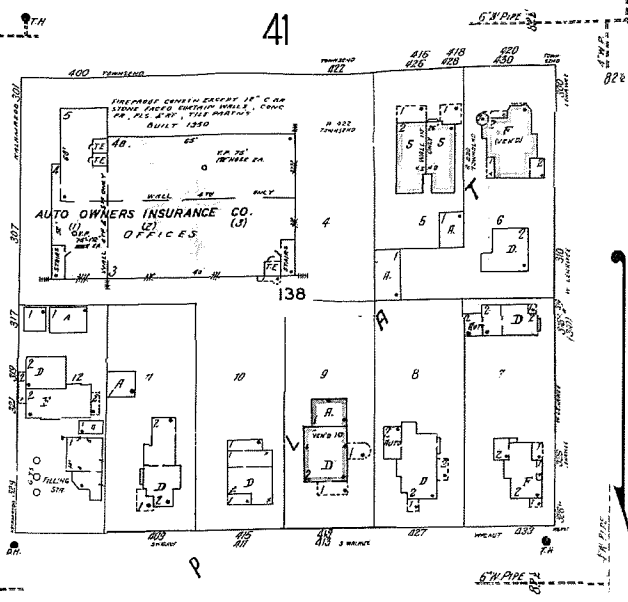
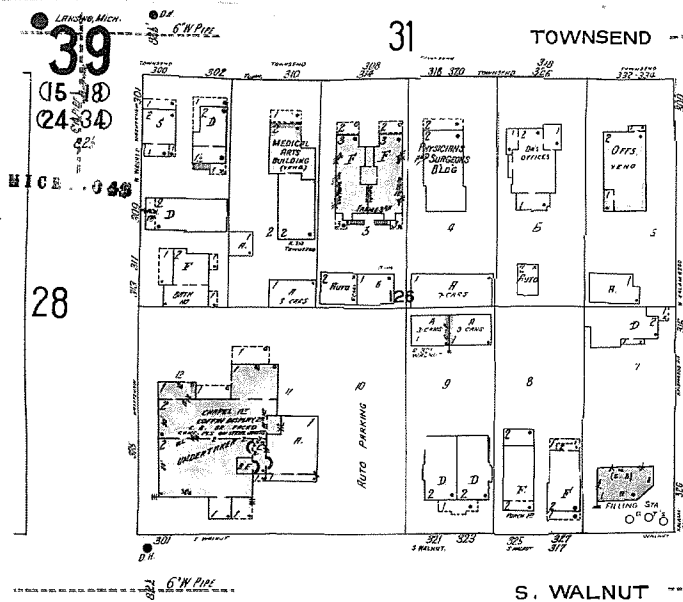
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 Research Associate: HNS  
 Copyright: 1951





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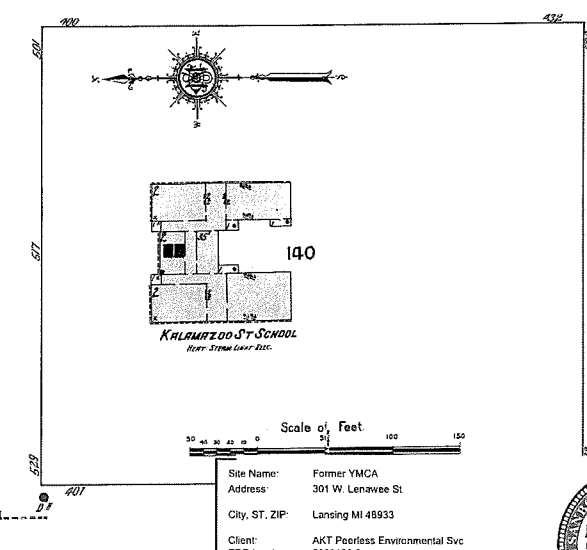
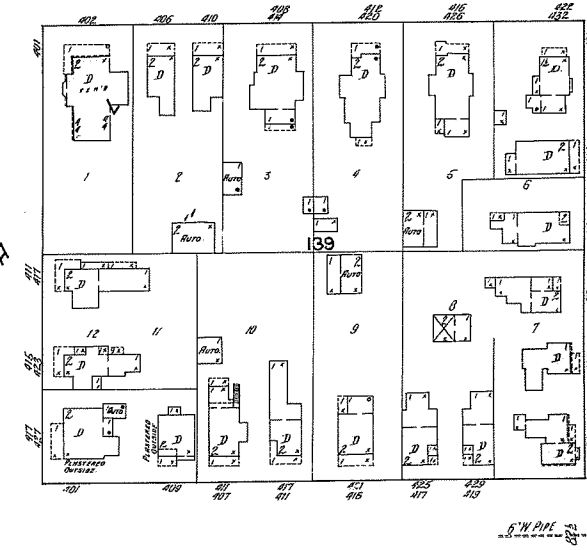
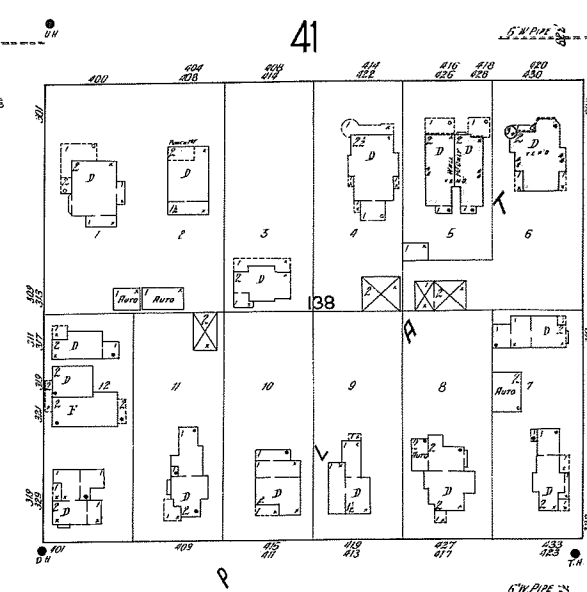
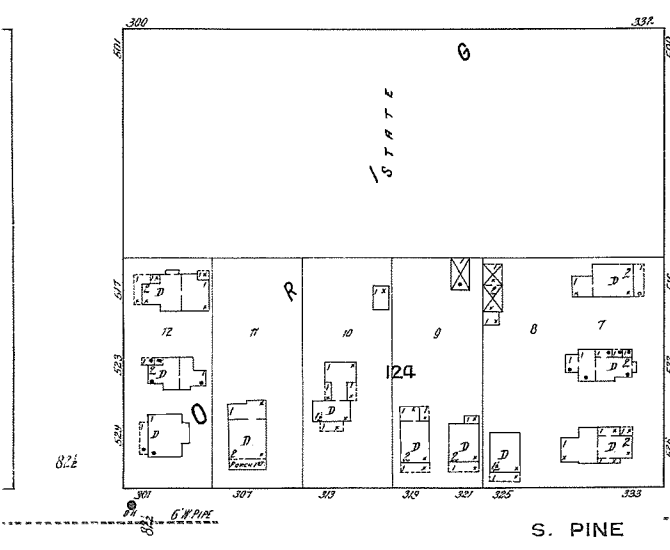
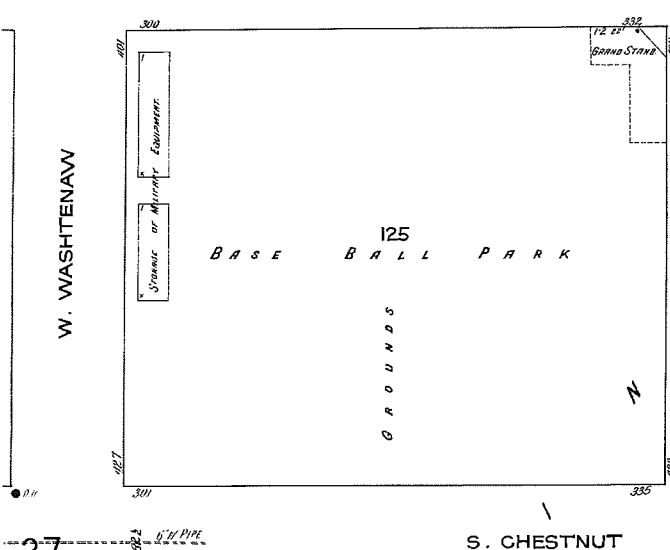
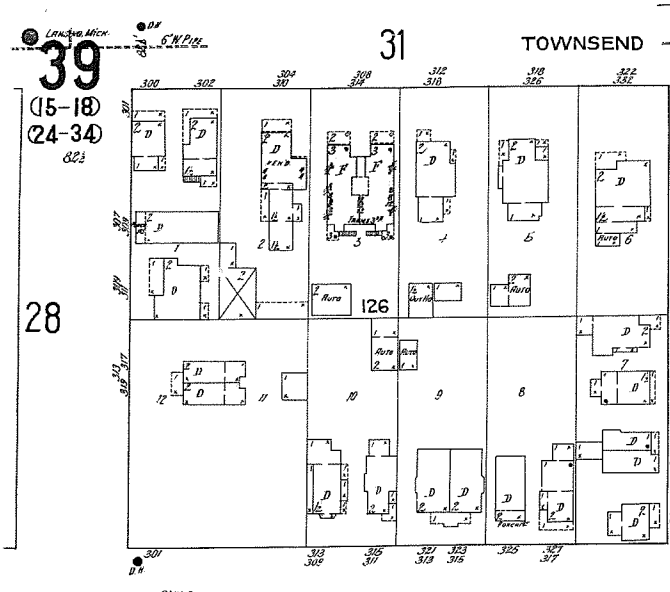
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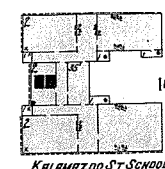
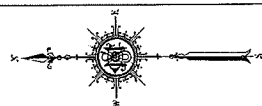




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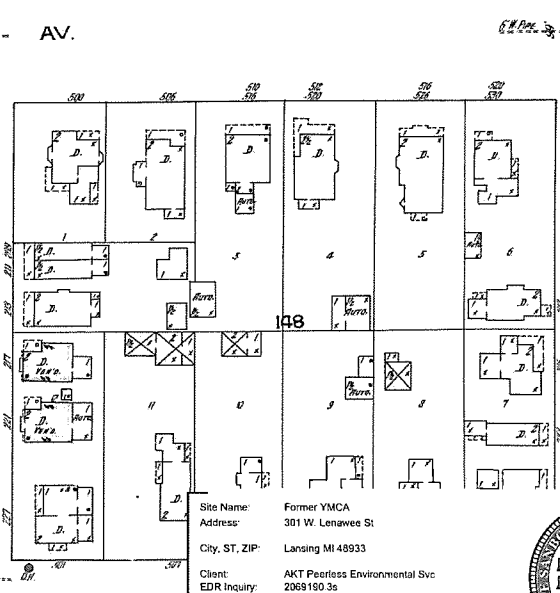
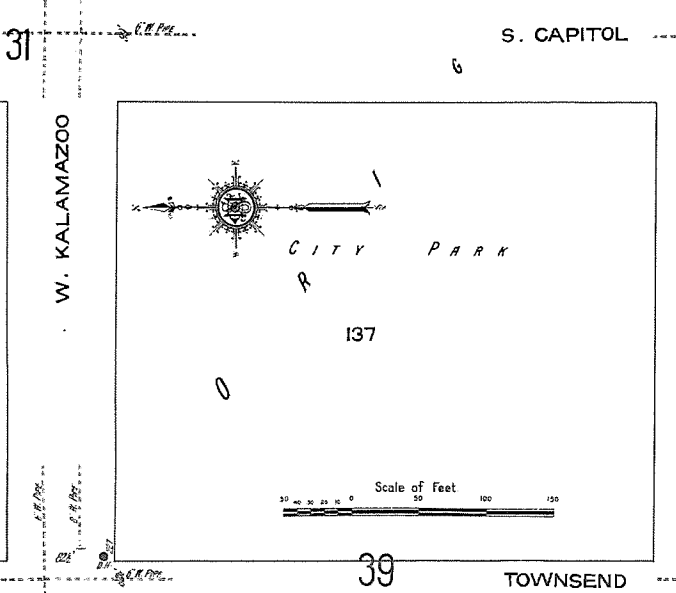
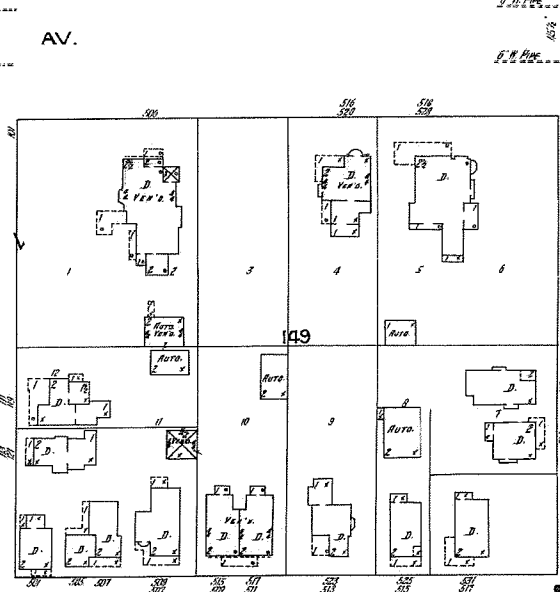
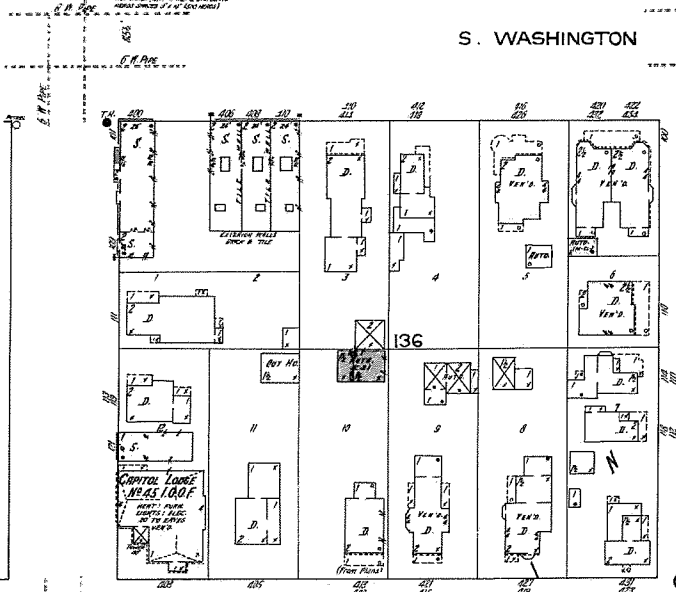
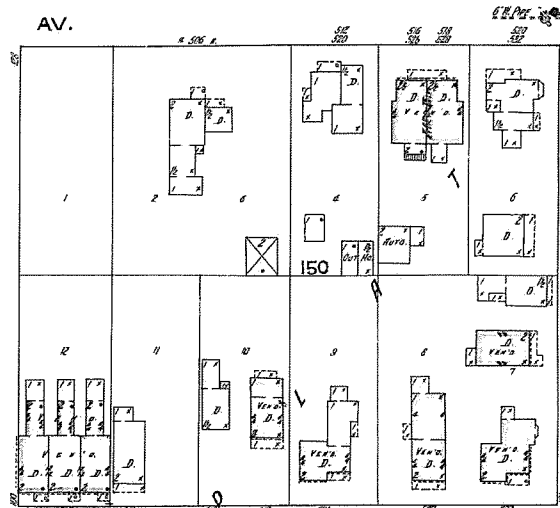
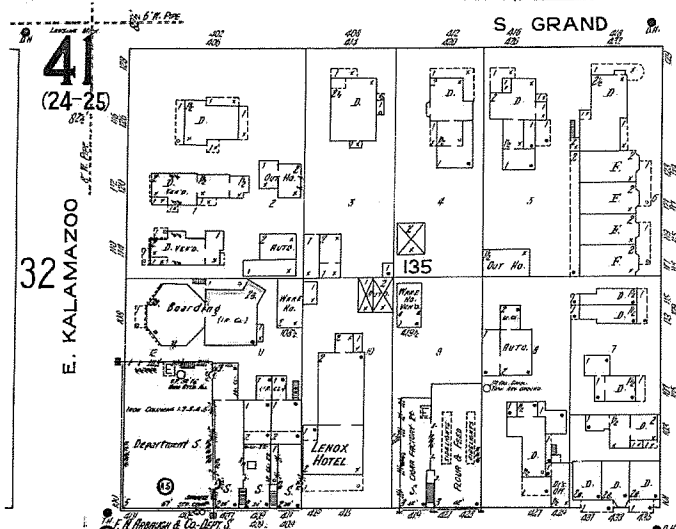
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Client: AKT Peerless Environmental Svc  
EDR Inquiry: 2069190 Sp  
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Certification #: FTAG-4362-BDA3

Research Associate: HNS Copyright: 1913





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42

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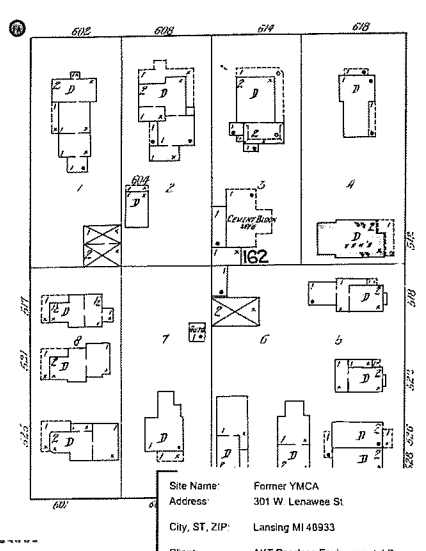
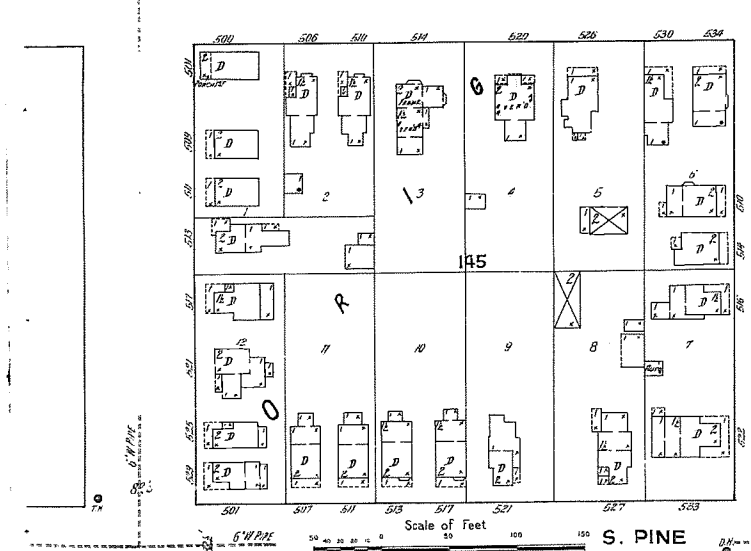
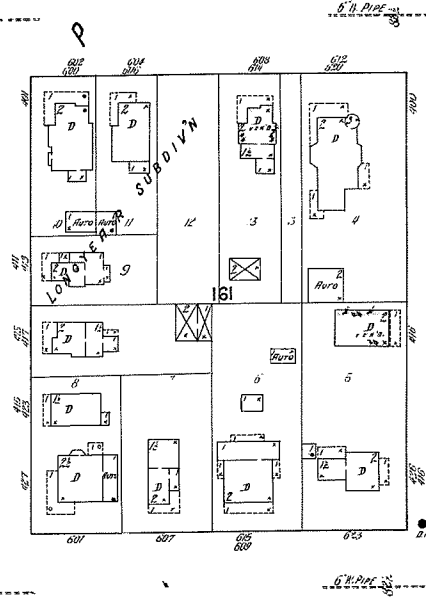
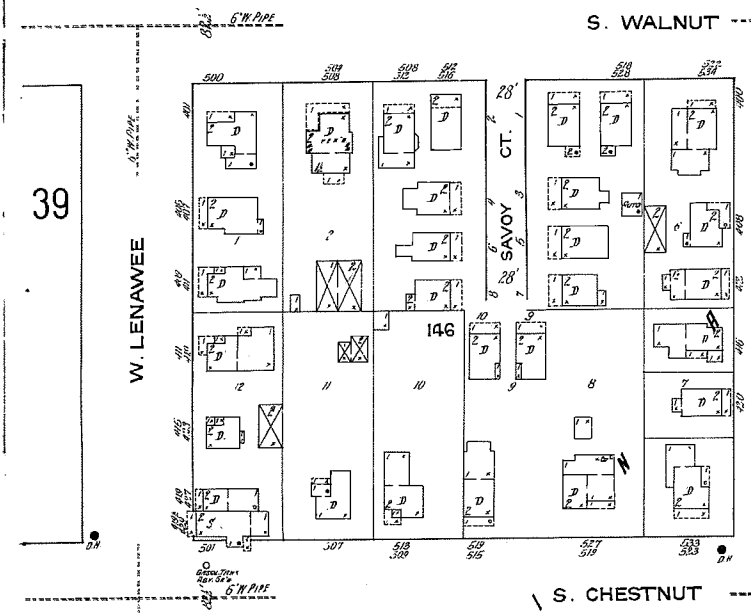
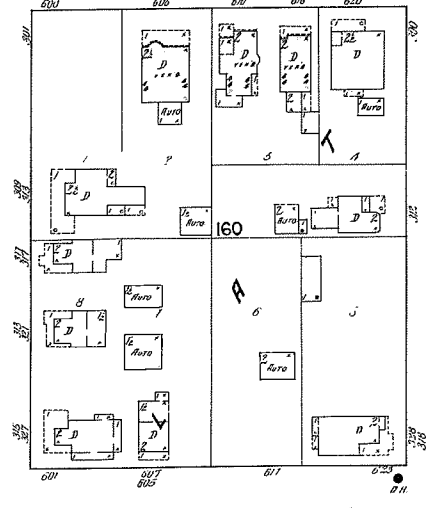
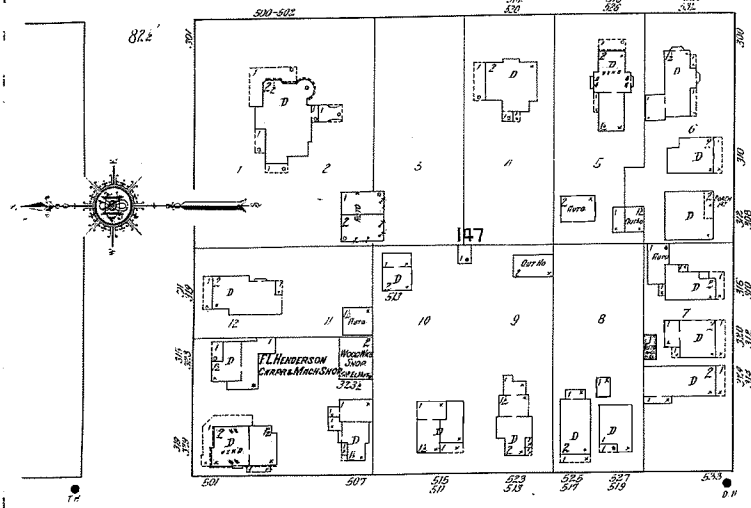
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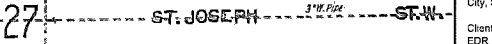
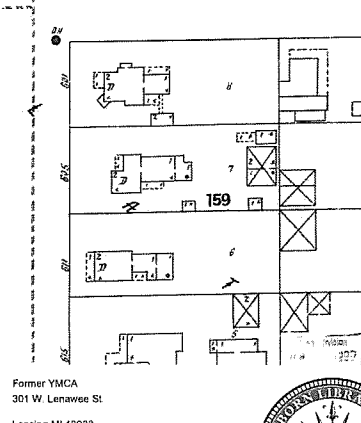
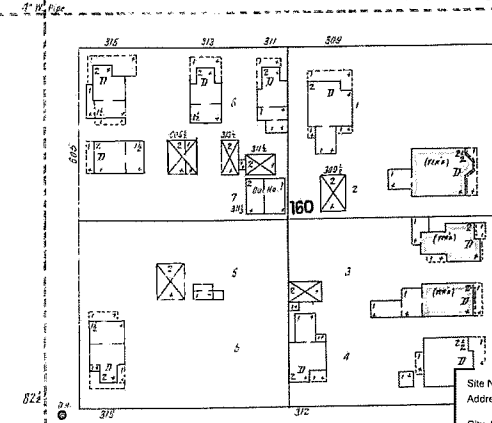
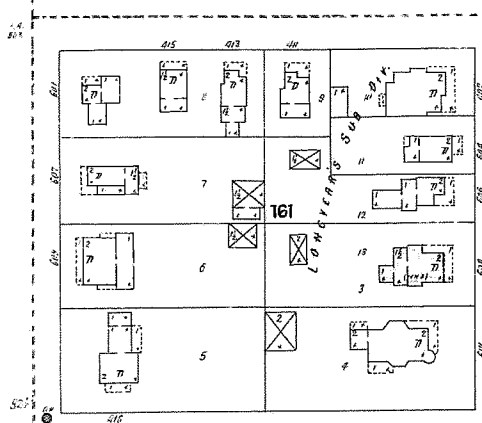
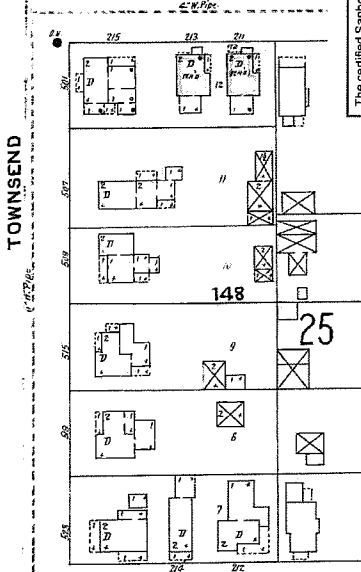
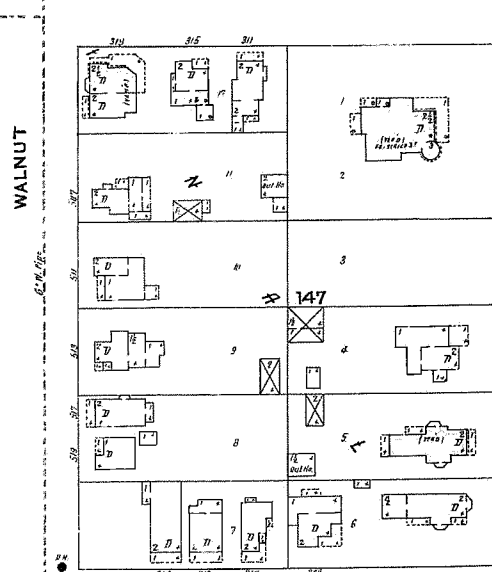
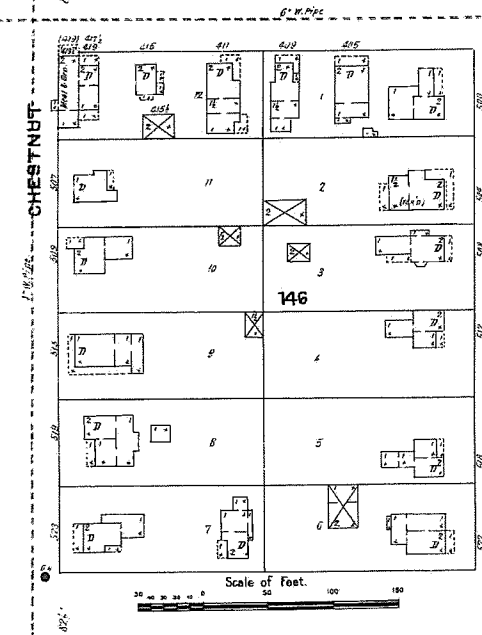
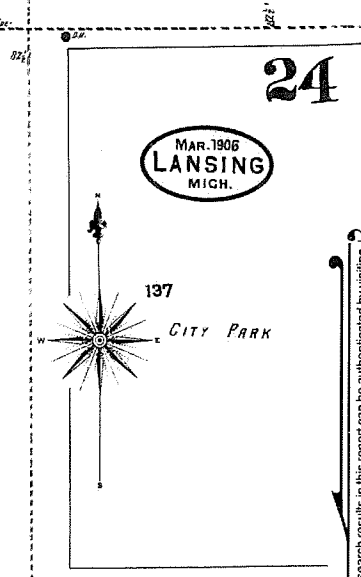
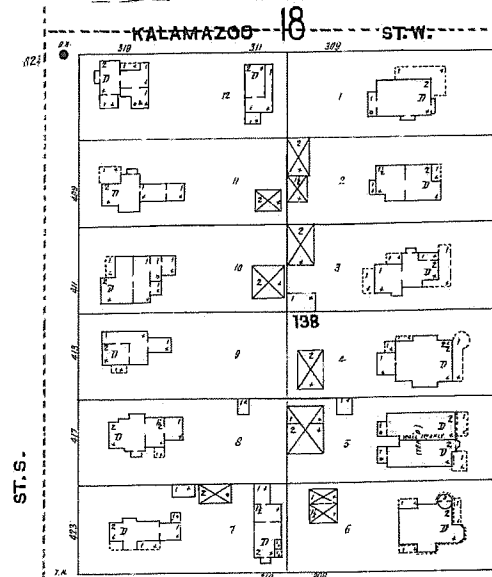
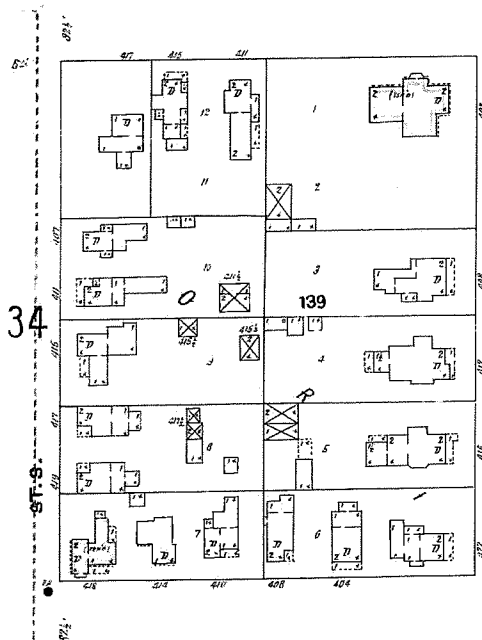
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47

Site Name: Former YMCA  
Address: 301 W. Lenawee St.  
City, ST, ZIP: Lansing MI 48933  
Client: AKT Peerless Environmental Svc  
EDR Inquiry: 2069190 3a  
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Research Associate: HNS Copyright: 1913

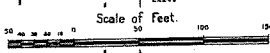
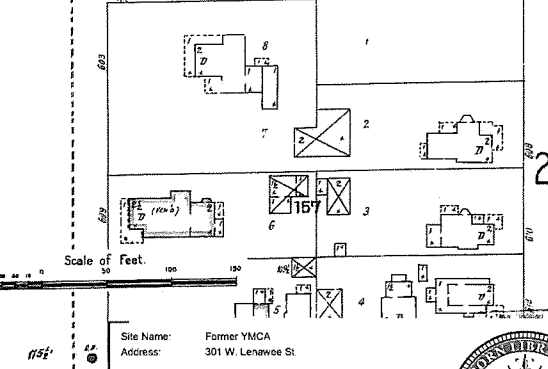
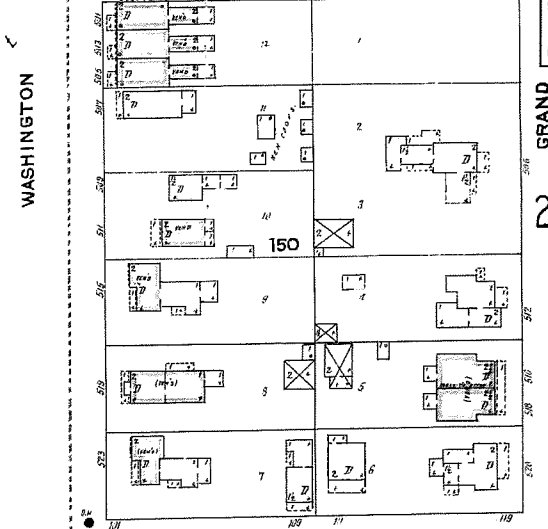
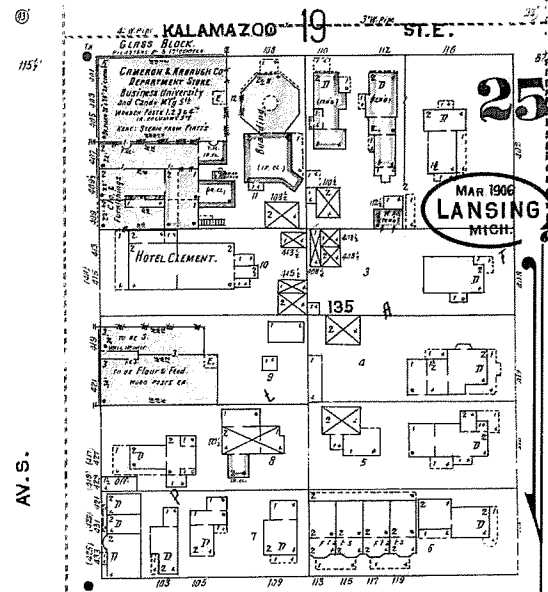
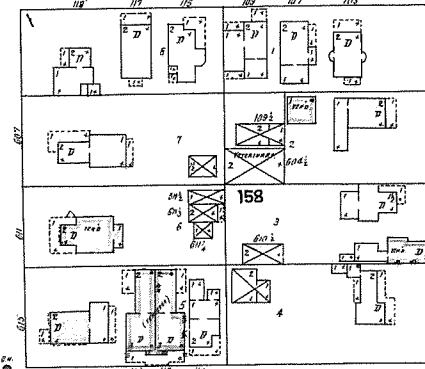
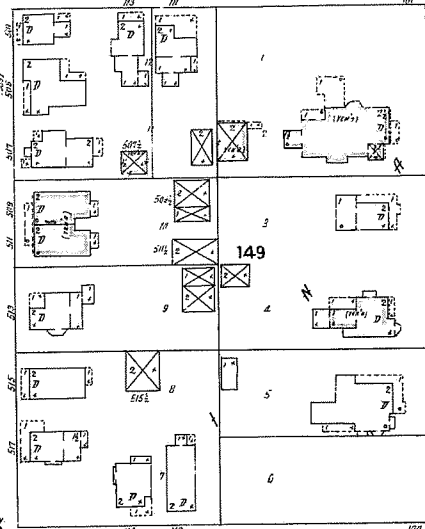
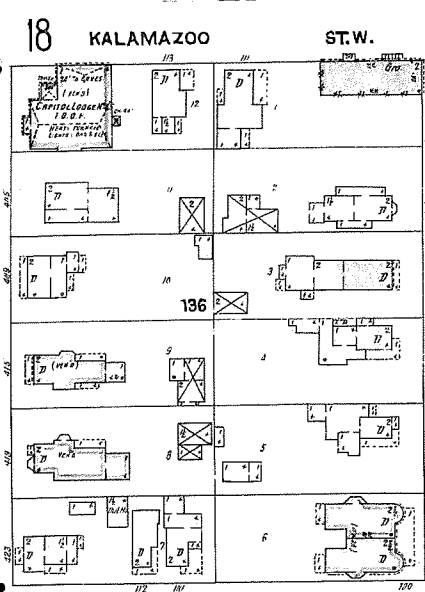
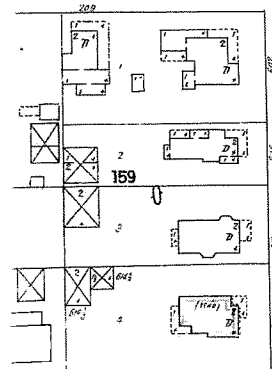
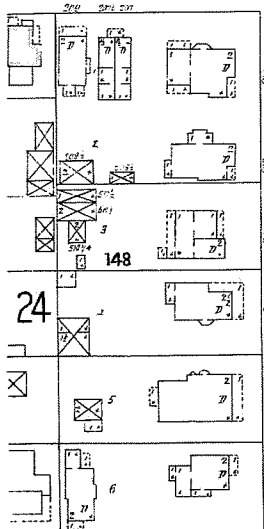
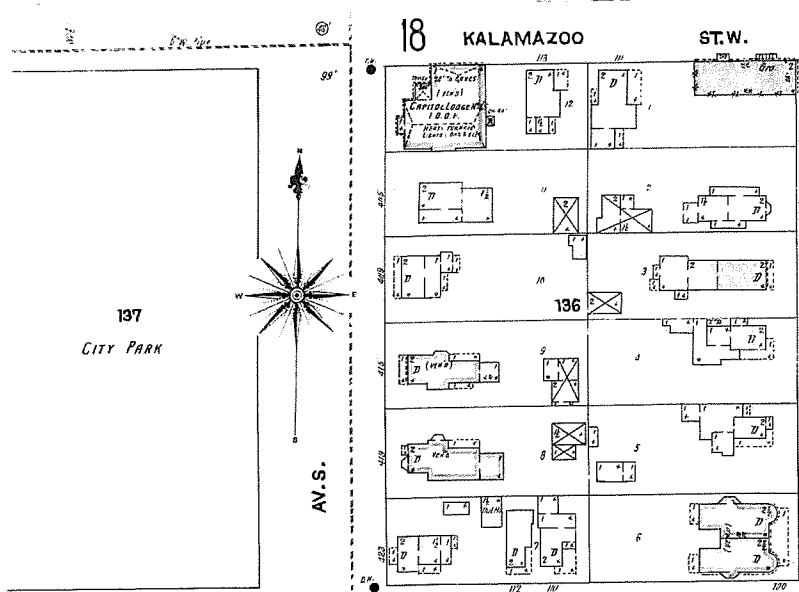


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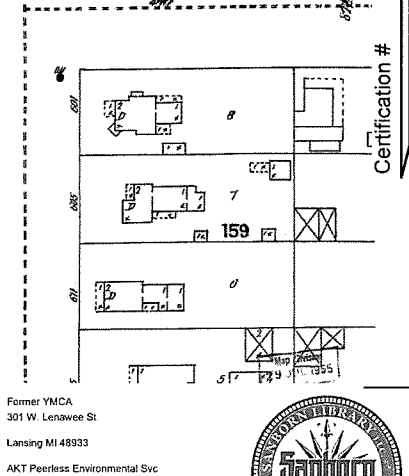
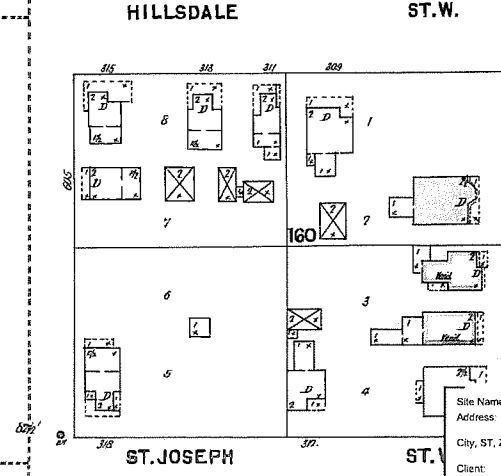
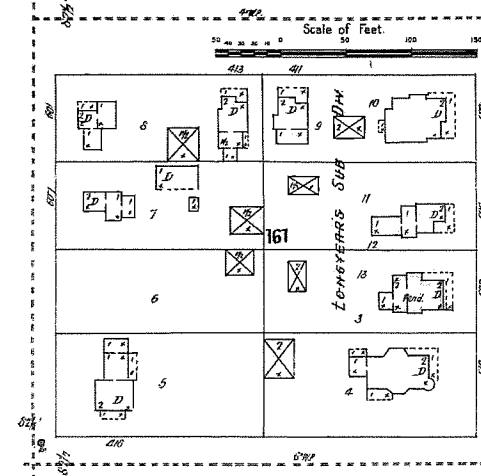
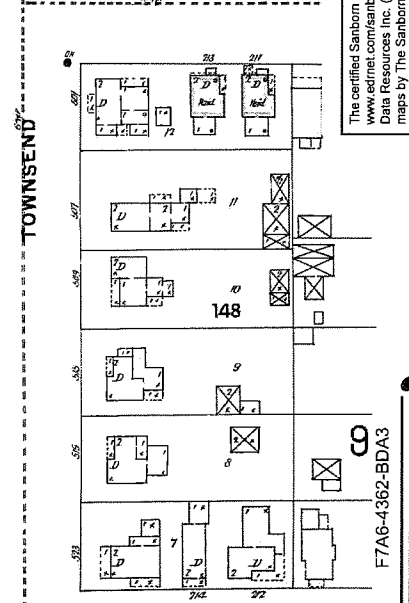
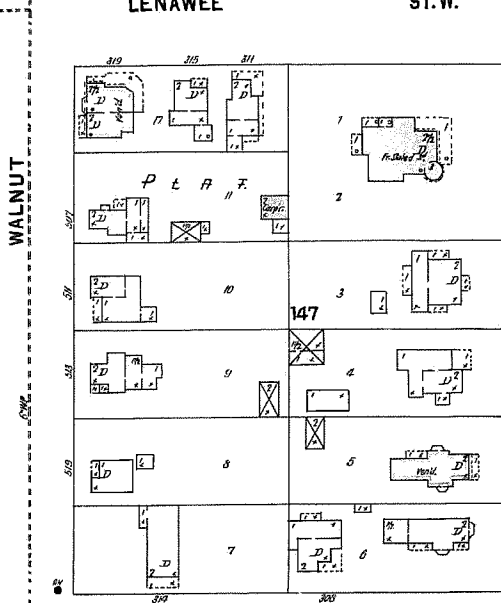
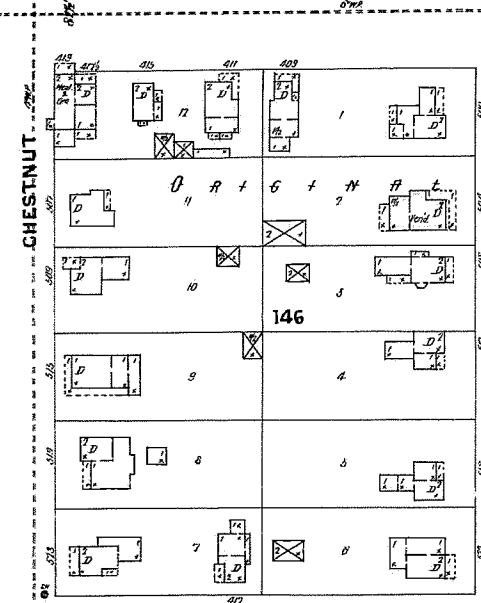
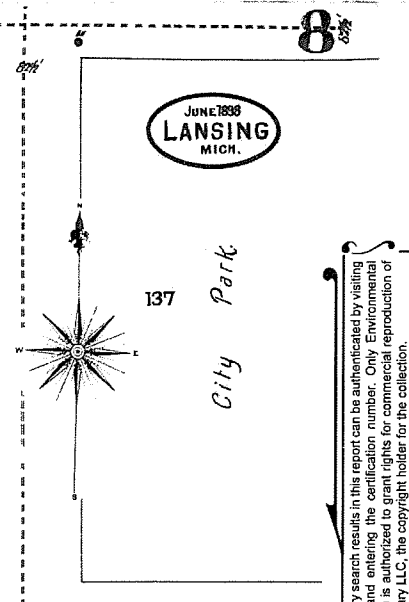
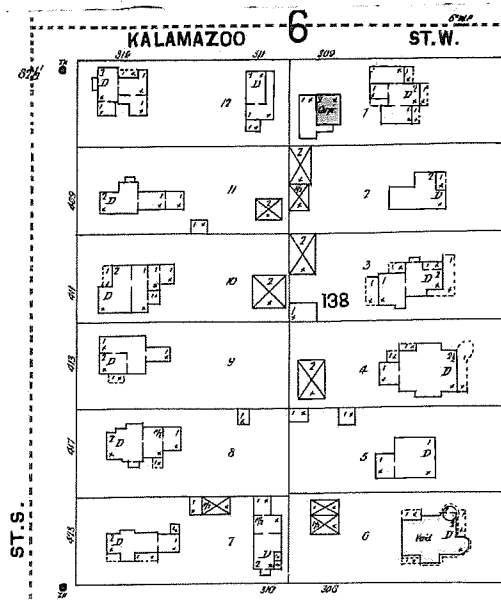
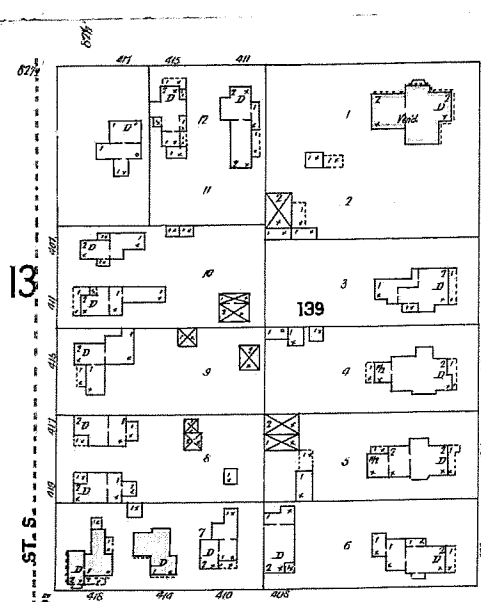


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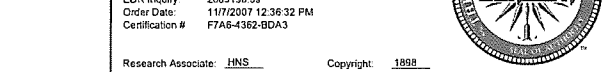
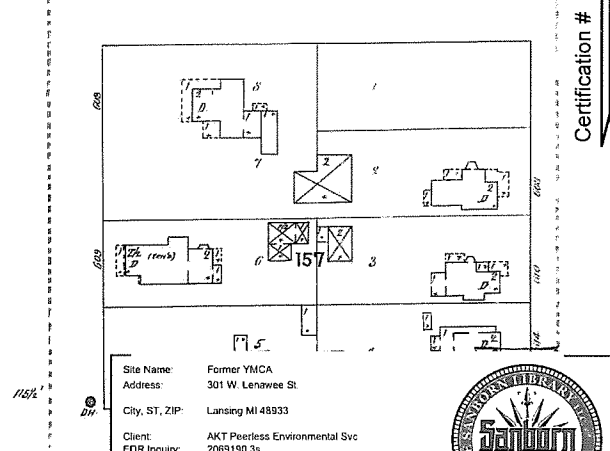
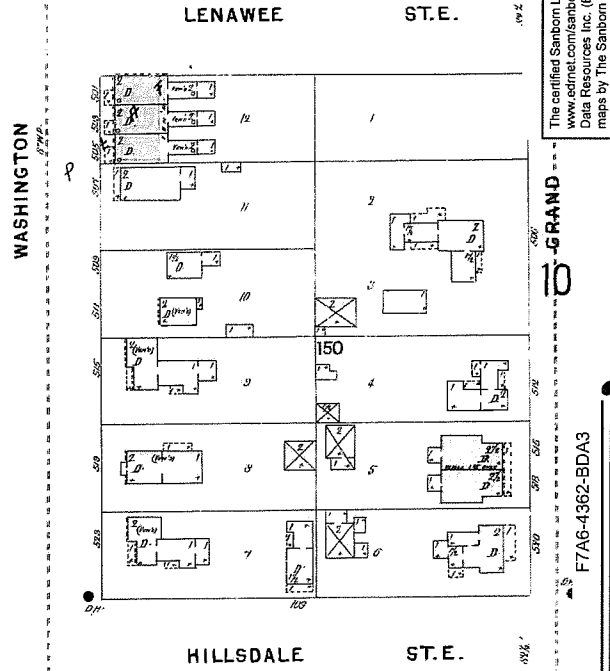
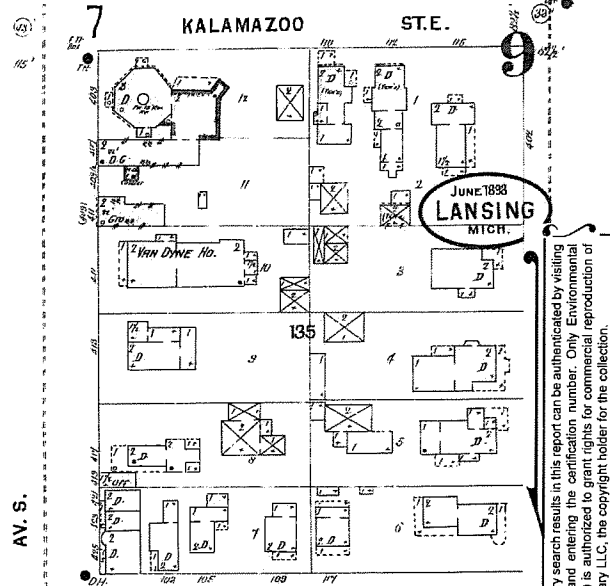
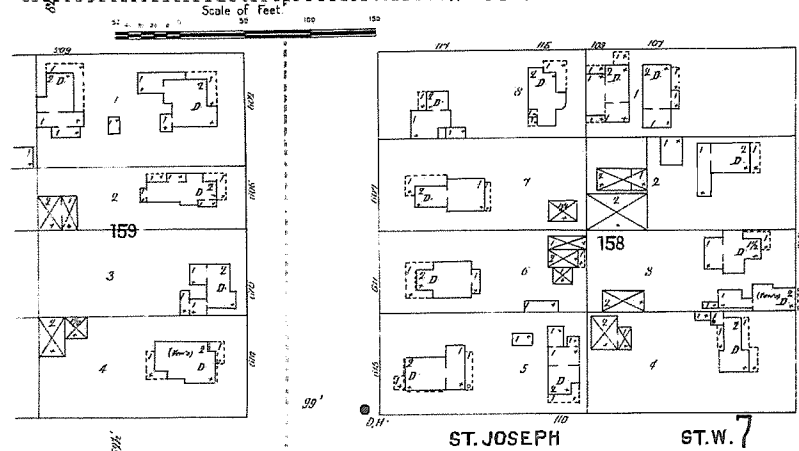
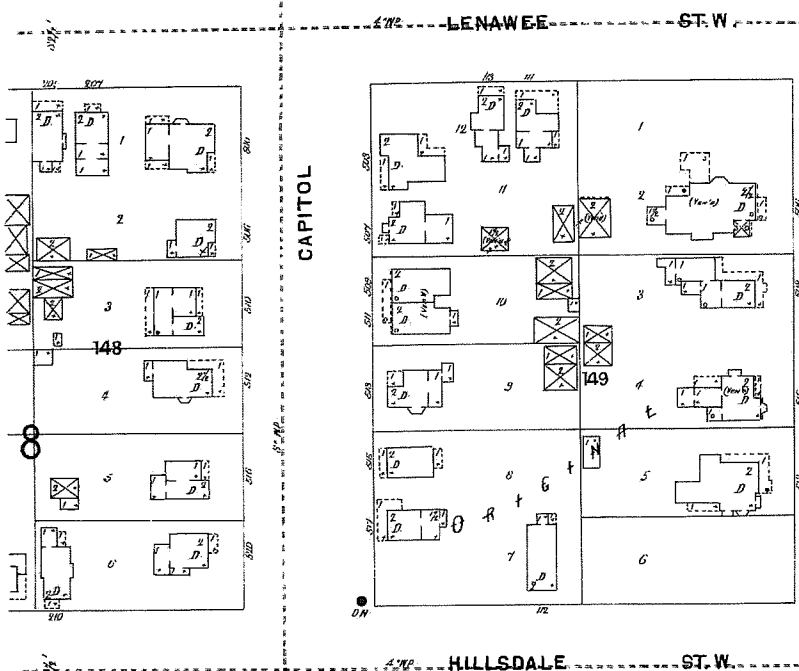
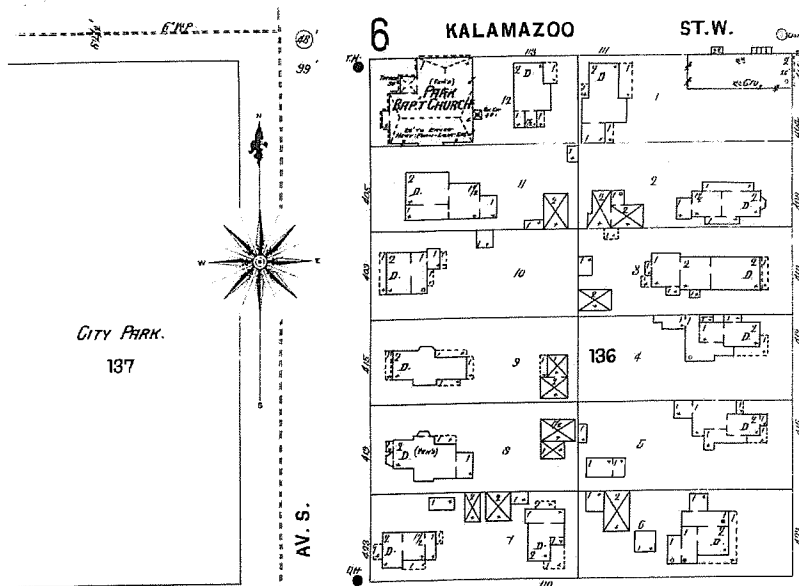
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Research Associate: HNS Copyright: 1898



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 City, ST, ZIP: Lansing MI 48933  
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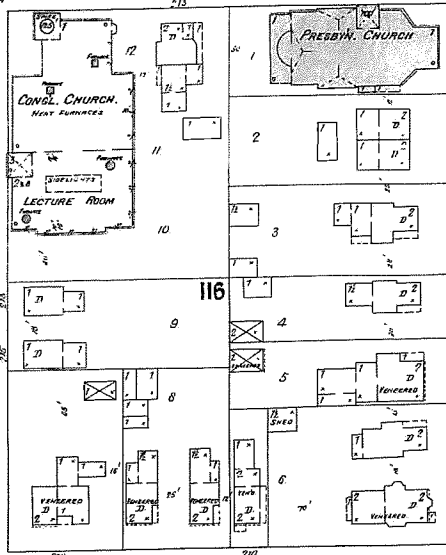
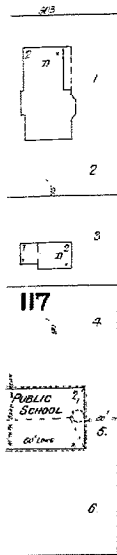
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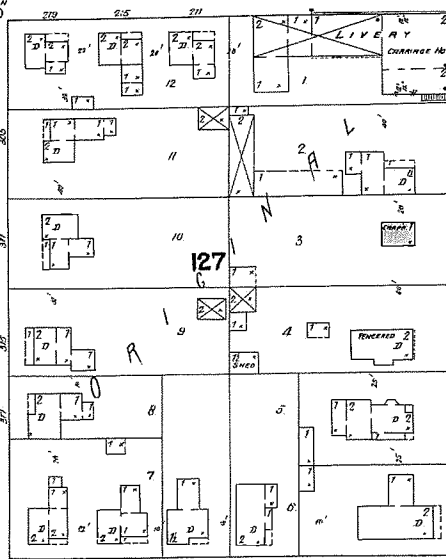
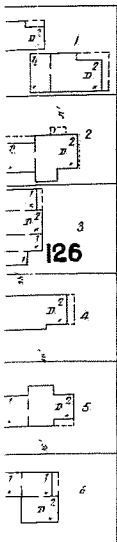


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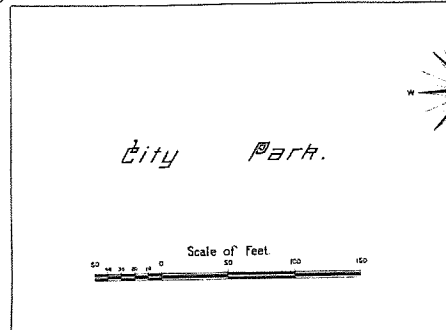
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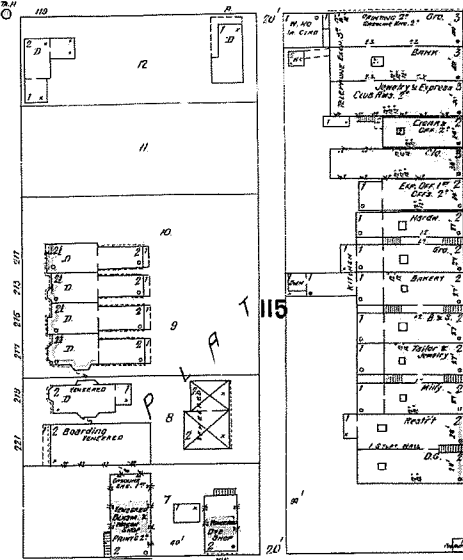
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W. KALAMAZOO

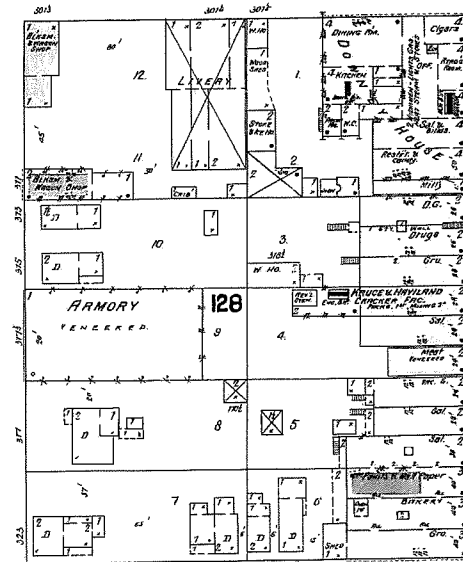


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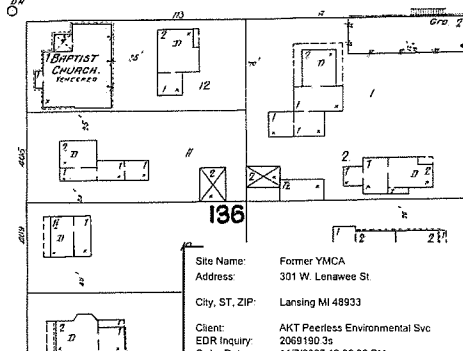


FEB. 1892.  
LANSING  
MICH.

S. CAPITOL AV.



S. WASHINGTON AV.



Site Name: Former YMCA  
Address: 301 W. Lenawee St.  
City, ST, ZIP: Lansing MI 48933  
Client: AKT Peerless Environmental Svc  
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S E E S H E E T

**REPORT OF  
ENVIRONMENTAL SITE AUDIT  
PHASE I**

**PREPARED FOR:**

**YMCA OF LANSING  
301 WEST LENAWEЕ STREET  
LANSING, MI 48933**

**PREPARED BY:**

**SNELL ENVIRONMENTAL GROUP, INC.  
1120 MAY STREET  
LANSING, MI 48906**

**JANUARY 1991**

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### **FIGURES**

<b>FIGURE 1 - SITE MAP</b>	<b>2</b>
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### **TABLES**

<b>TABLE 1 - Act 307 Sites</b>	<b>3</b>
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## **PURPOSE AND SCOPE**

Snell Environmental Group, Inc. (SEG) on behalf of the YMCA of Lansing has completed the following Phase I Environmental Audit. The objective of the audit is to develop a brief description of the premises, its location, surroundings, and any associated environmental problems near or in the vicinity of the subject property, 301 W. Lenawee, Lansing, Michigan (Figure 1).

To complete this objective, SEG conducted an on-site visit, completed a historical ownership search, conducted an asbestos evaluation which included sampling and analysis, and researched available regulatory information from local, state, and federal agencies. See Attachment A for the specific scope of services.

## **SECTION 1 - SITE ANALYSIS**

On December 4, 1990, SEG conducted a site inspection to determine if any visible potential concerns existed in the building, grounds or adjacent property. The inspection involved a site walk-through of both the internal and external portions of the subject property to locate visual signs of past waste disposal activities, stressed vegetation, stained soil or the presence of underground storage tanks. Additionally, radon testing, an inspection for polychlorinated biphenyl(s) (PCB), and a preliminary evaluation of construction and insulating materials for the potential presence of asbestos was performed.

The site consists of a six-story recreational and temporary housing facility, approximately 100,000 square feet, and an asphalt parking lot to the west of the building located between Walnut and Townsend Avenues on the south side of Lenawee. The building is constructed of brick and concrete and is serviced by all major utilities. Located in the lower basement there is a room housing several transformers owned and serviced by the Lansing Board of Water & Light. A representative of the Board stated that these transformers are considered non-PCB transformers. In the basement machine room there is a storage tank of chlorine treatment chemicals for the swimming pool. Also noted in this area, in the bulk head from outside, is an oily substance on a wood peg board and miscellaneous debris on the floor. This area appears to be used to discard miscellaneous trash.

### **Title Search And Historical Property Usage**

SEG conducted a historical title search in order to record the past ownership of the property, thus determining what impact such ownership may have had on the environmental condition of the property. The title search was completed at the Ingham County Register of Deeds with additional historical information gathered from the RE Olds Museum of Lansing. The information accessed from the Register of Deeds dates back to 1941. The following chart shows the land transactions corresponding to the property.

I. 301 West Lenawee

<u>Property Owner</u>	<u>Transaction Date</u>	<u>Liber/Page</u>
Young Men's Christian Assn.	November 16, 1949	619/76
Ransom Fidelity Co. R.E. Olds Company	May 5, 1942	619/103
Nellie Freeman Stewart Carl C. Randall & Wife	November 4, 1941	461/406
S. Frances Moores	June 4, 1941	453/406

-END OF SEARCH-

The title search revealed no evidence of potential environmental concern from the past ownership history of the site. Previous uses of the property could not be determined from the historical title search.

The title search also noted there were no hazardous waste liens observed for the property.

Regulatory File Review

The records of pertinent state and county regulatory agencies were reviewed to determine if the property is or has been a source of environmental concern. The records indicated that although the individual property itself has not been identified by either county (Ingham County Health Department), state (MDNR), or federal (EPA) agencies, as a known or a suspected cause for environmental concern, several areas of such concern do exist in close proximity to the facility. Corresponding explanations as the source of the concerns as well as speculations regarding the affect the contaminated sites may or may not have on the audit site are tabulated in Table 1.

TABLE 1

The Michigan Sites of Environmental Contamination Priority Lists-Act 307 were reviewed to locate those sites that are within a one half mile radius of the audit site. This review concluded that the following sites are included on the list for the indicated concerns.

1. Michigan Bell Telephone Facility - Located at the southeast corner of Capital and Ionia - An underground storage tank, presumed to be leaking, had contaminated ground water at the site. However, the plume of hydrocarbon constituents in the ground water is migrating in a northeasterly direction and, therefore, should not affect the audit property.

**TABLE 1 (continued)**

2. Board of Water & Light - Ottawa Street - Runoff from a coal pile resulted in elevated metals contents in adjacent surface soils. Some remediation has been accomplished, and the potential for the site to affect the audit site is unlikely.
3. Several municipal ground water wells in the area are no longer in use due to the detection of dichloroethylene in the water. The source of the contamination is unknown, however, it is known that the chemical, dichloroethylene is used as a solvent. It is improbable that the audit property is the source of the dichloroethylene contamination, and therefore, the liability to the property owner would be limited.
4. Mobil Oil - Southeast corner of Michigan Avenue and Larch Street - The drilling crews of a local environmental consulting firm have been observed by SEG personnel drilling at the property on more than occasion. At least three ground water monitoring wells have recently been installed at the site.

The MDNR files included a brief report of preliminary work conducted by another consulting firm, regarding the site. That work was prompted by the property changing ownership from Boron (Gas and Go) to Mobil. The preliminary work indicated that some organic vapors were noted, via soil gas investigation, in the vicinity of the underground storage tanks. The MDNR files indicated that their office had attempted to follow up on the project with limited success.

The recent work by the local firm was, presumably, prompted by the initial work. The installation of ground water monitoring wells is usually indicative of predetermined or highly suspected ground water contamination. Therefore, it is unknown at this point whether the audit parcel would be affected by the Mobil site.

## **SECTION 2 - ASBESTOS INVESTIGATION AND TESTING**

The investigation was conducted with the intent of identifying where possible, asbestos containing materials (ACM) at 301 W. Lenawee Street. Identification was made of pipe insulating materials present on fittings and on continuous runs of pipe. The investigation was also intended to identify areas of wall or ceiling insulation and fire dampening materials. Additionally, the presence of ACM contaminants which might occur in building finish materials such as wall or ceiling plasters and ceiling and floor tiles was also evaluated. The bulk sample reports for the identification of asbestos containing building materials are located in Attachment C.

### Itemized Summary of Building

The YMCA building is a six-story concrete block and brick structure with wood truss and decking, with cement flooring. The finishing materials used in a majority of the facility include plastered walls over metal lathe, ceiling tiles over plaster ceiling, and various floor tiles. The following is a summary of rooms inspected where suspect insulation or finishing materials were noted, and samples were taken.

1. Fire Pump Room

The fire pump room is located in the basement and is the location of the main water line, and several steam lines. Four (4) samples were collected from this area, results indicate that all four samples are positive for asbestos content. This includes the layered paper, corrugated paper, and all plaster fittings.

2. Maintenance Shop

Located in the maintenance shop is a continuation of the steam lines, a two inch (2") line, and four (4) one and one quarter inch (1-1/4") lines wrapped with corrugated paper and plaster fittings. Samples were not taken because of the similarity to the insulation found and sampled in the fire pump room.

3. Basement Hallway

The floor in this area is tiled with nine inch (9") brown floor tile. This material tested positive for asbestos content.

4. Basement Attic

The attic, located over the old racquetball courts, contains several steam lines and water lines which appear to be insulated with corrugated paper and plaster fittings. This area is not accessible without removing a portion of the block wall.

5. Basement Ceiling Tile

The two-foot by two-foot (2'x2') ceiling tiles were sampled. The results show no asbestos containing material.

6. Multipurpose Room

The multipurpose room, located in the basement, is where the main steam line enters the building. Three (3) samples of the insulation were collected. These include a sample of the ten inch (10") main steam line, a sample of a four inch (4") steam elbow which is aircell insulation, and a sample of the one and one half inch (1-1/2") steam elbow. All corrugated insulation, aircell are positive for asbestos content. The plaster elbows on the 10", and the 4" steam line are positive, but the 1-1/2" line elbow plaster is a non-asbestos material. The 1-1/2" line itself is insulated with the same corrugated material as the 10" and the 4" lines.

7. Old Pantry

In the old pantry there is a potable water line of 1-1/4" size covered with a layered paper and plaster fittings. Two (2) samples were collected, one of the layered paper, which is a non-asbestos paper, and one of the plaster fitting, which resulted in a positive test for asbestos content.

8. Main Sub-Basement

A heat exchanger for the building is housed in this area. A sample of the insulation off of the 4'x7' exchanger tested positive for asbestos. Other insulation in this area is corrugated paper which is aircell asbestos wrap.

9. Handball Court No. 8

A sample of the original wall plaster was collected from a damaged area near the floor. No asbestos was detected in this sample.

10. Pool Mechanical Room

The following steam and water lines were noted in the site investigation: 1) 1-1/2" layered paper, negative from the point of entry into the building; 2) 3" steam aircell wrapped line; 3) 4" main water line, positive for asbestos, including plaster fittings; and 4) 6" steam aircell wrapped line. There is approximately 130' of each of these pipes running around the pool.

11. Women's Shower

Noted in the crawl space below the women's shower is scrap aircell fallen from the pipes.

12. New Court Area

This addition was added in 1968. The insulation on the pipe system is fiberglass with non-asbestos wrapped fittings.

13. Youth Lobby

A sample of the layered wall plaster was collected from an area where it was exposed near the floor. The results of analysis on this sample are positive, although a low percentage (2%) was discovered.



14. Second Floor Hallway

Noted on the second floor the YMCA is a 50 square foot area of 9" green floor tile. This is positive for asbestos material.

15. Civitan Storage Room

The wall plaster sampled from this area, a plaster over metal lathe, is non-asbestos material. This same configuration of wall plaster is present in a majority of the building.

16. Michigan Room

The plaster ceiling was sampled from the room. The result is negative for asbestos containing material.

17. Plumbing Chases

There are plumbing chases on the upper floors associated with each bathroom. Noted in the site investigation, the insulation on the pipes is layered paper with plaster fittings. The layered paper sampled in two other locations was negative in each case, whereas the fitting plaster tested positive for asbestos identification.

18. Elevator

Present in the elevator is green linoleum. A sample collected of this material resulted in a positive identification of asbestos.

19. Floor Tile on Floors 2, 3, 4, 5, 6, and the Basement

Noted in the investigation was the presence of a substantial amount of brown floor tile throughout the building. A sample of the tile was collected from the basement hallway. This 9" tile is positive for asbestos containing material. The mastic to adhere the tile to the floor is also considered asbestos contaminated material.

20. Floors 3-6

An investigation of the fifth floor was completed and is considered representative for the other residential floors. The ceiling is a solid plaster ceiling. There was no access above this ceiling found on the fifth floor. There was some scrap lagging on the floor in one of the closets suggesting the possible existence of insulated lines above the ceiling. No other suspect material was observed other than what has been previously mentioned.

### SECTION 3 - CONCLUSIONS AND RECOMMENDATIONS

Snell Environmental Group, Inc. has completed a Phase I Environmental Audit for the property located at 301 W. Lenawee, Lansing, Michigan. The audit concluded that there is a substantial amount of asbestos containing material in the insulation on the steam and hot and cold water lines, on the air handlers, the heat exchanger, some wall insulation, and in the green and brown floor tiles. Because of the vast amount of friable (crumbles with hand pressure,) asbestos identified in this investigation, a quantification and cost estimate for removal could not be accurately determined under the scope of this Phase I Audit. SEG recommends that a complete asbestos survey, quantification, and specifications for removal be performed before any demolition or renovation project proceeds. Additionally, the audit concluded that there is no concern regarding the presence of PCB in the transformers located in the building, the existence of underground storage tanks, or any other potentially hazardous materials.

#### Estimate For An Asbestos Survey

Inspection	25 Hours @	\$45.00/ Hour	\$ 1125.00
Additional Sampling	25 Samples @	\$35.00/ Sample	875.00
Report	10 Hours @	\$45.00/ Hour	450.00
Total			\$ 2450.00

Other than the above concerns regarding asbestos SEG recommends no further environmental investigation at this property.

This audit is subject to the limitations outlined in Attachment D.



SNELL ENVIRONMENTAL GROUP, INC.

January 10, 1991

YMCA Of Lansing  
301 West Lenawee Street  
Lansing, Michigan 48933

Attention: Floyd Mann, Director

Re: Environmental Site Audit at the Downtown Lansing YMCA

Dear Mr. Mann:

Snell Environmental Group, Inc. (SEG), is pleased to submit this Phase I Environmental Audit Report for the above referenced property.

The enclosed report details the field work accomplished and reviews the results of the laboratory analyses conducted. Those results reveal that there is a substantial amount of asbestos in the building.

Thank you for the opportunity to complete this phase of the project. We look forward to being of further service to the YMCA of Lansing. If you have any questions, please contact our office at (517) 374-6800.

Very truly yours,

Julie A. Hartner  
Environmental Analyst

Peter F. Cole, P.E.  
Environmental Services Manager

JAH/PFC/caf

REPORT OF  
ASBESTOS EVALUATION

PREPARED FOR:

YMCA, CENTRAL  
301 WEST LENAWEE STREET  
LANSING, MICHIGAN 48933

PREPARED BY:

SNELL ENVIRONMENTAL GROUP, INC.  
1120 MAY STREET  
LANSING, MICHIGAN 48906

FEBRUARY 1991

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APPENDIX C - ASBESTOS BULK SAMPLE RESULTS  
FROM JANUARY 17, 1991 SAMPLING

## I. INTRODUCTION

Snell Environmental Group, Inc. (SEG), has completed an asbestos investigation at the YMCA Central Branch, 301 West Lenawee Street, Lansing, Michigan.

The investigation was conducted to identify friable asbestos located at the above mentioned facility and materials that may become hazardous upon their demolition. The evaluation involved a building inspection which was accomplished with the assistance of personnel from the YMCA. The building inspection included an asbestos evaluation and testing through visual inspection, bulk sample collection for polarized light microscopy analysis, and subsequent estimates of the amounts of asbestos containing materials (ACM) requiring removal prior to building renovation.

The collected data from the investigation was tabulated to provide a cost estimate for removal of the asbestos by a licensed asbestos contractor. The cost estimates are based upon recent large scale projects undertaken by SEG in the City of Lansing in 1990. The cost estimate is only approximate and is to be used as a comparison for bids accepted from at least three licensed abatement contractors. A hazard ranking system was not employed in the study because the entire building will be renovated.

The following document is a comprehensive report compiling the work accomplished at the site.

## II. ASBESTOS INVESTIGATION AND TESTING

The investigation was conducted with the intent of identifying, where possible, ACM at the YMCA, Central Branch. Identification was made of pipe insulating materials present on fittings and on continuous runs of pipe, boiler wrap, including heat exchangers, and air handlers. Pipe fittings were called out as elbows, tees, valves, hangers, and end caps. The investigation was also intended to identify areas of wall or ceiling insulation, fire dampening materials, and electrical insulators. Additionally, the presence of ACM contaminants which might occur in building finish materials such as floor tile and linoleum, wall or ceiling plasters and acoustical ceiling tiles were also evaluated.

### Itemized Summary of the Building

The investigation at this site included all six floors, a basement, and sub-basement. There are several asbestos containing materials identified in this building, including layered paper on the steam and hot and cold water lines, and aircell wrap on the steam lines, return and supply lines, and the water lines. Additionally, all of the plaster fittings associated with the layered paper and aircell tested positive for asbestos content, with exception to the six- inch steam line from the basement pool mechanical room to the nautilus equipment room. This six-inch line and associated fittings do not contain asbestos. This portion of the building was renovated in 1968. There is fiberglass wrap with mudded fittings in this area that also tested negative for asbestos content. Although some of the layered paper resulted in non-detectable amounts of asbestos, because of the nature of layered paper manufacturing, SEG considers all of the layered paper to be positive for asbestos content. Brown floor tile located throughout the facility contains two percent (2%) asbestos. The green linoleum located in the back elevators to the residence floors also contains asbestos. All plaster and lathe tested negative for asbestos content, as well as ceiling tiles and ceiling plasters.

### III. CONCLUSIONS AND RECOMMENDATIONS

There was a small amount of asbestos containing material (ACM) found within the YMCA, Central Branch.

Before renovation and demolition can proceed, all friable asbestos containing materials should be removed in accordance with NESHAP 40 CFR, part 61 regulations. Friable is defined as a materials that when dry can be crumbled, pulverized, or reduced to powder by hand pressure, or any previously non-friable material that has become damaged to the extent that when dry it may be crumbled, pulverized, or reduced to powder by hand pressure. These regulations pertain to the general construction industry and cover the reporting procedures for the removal and disposal of ACM from demolition or renovation projects.

According to a U.S. EPA memorandum received by SEG on April 2, 1990, the following approach to non-friable ACM in buildings to be demolished is recommended:

Floor tile, roofing materials, pipe joint packing and pipe gaskets (normally non-friable ACM) must be inspected before demolition to determine if the ACM is in poor condition, indicated by peeling, cracking, or crumbling of the material. If normally non-friable ACM is in poor condition, then the material must be tested for friability. If the ACM is friable, it must be handled in accordance with NESHAP and removed before demolition. If the non-friable ACM is subject to sanding, grinding, or abrading as part of the demolition, then the non-friable ACM must be handled in accordance with NESHAP and removed before demolition. If the building is demolished by burning, all ACM must be removed prior to the burning. Floor tile in good condition may be left intact if the materials is wetted before demolition ensues.

#### Asbestos Abatement Estimates

The cost estimates presented in the following pages are based on recent large scale projects in which SEG has been involved. These are not for bidding purposes and are presented to provide a reasonable definition of cost to be incurred:



MCA Floors 0.003663003  
 Removal 1-6  
 Cost Cost Summary 14040A

\*\*\*\*\*  
 Pipe Item Unit Unit Quantity Estimated  
 Size Description Cost Expende  
 \*\*\*\*\*  
 2" Lagging Lin. Ft. \$45.00 \$0.00  
 10" Lagging Lin. Ft. \$40.00 \$0.00  
 2" Lagging Lin. Ft. \$32.00 15 \$480.00  
 2" Lagging Lin. Ft. \$28.00 386 \$10,808.00  
 2" Lagging Lin. Ft. \$25.00 338 \$8,450.00  
 3" Lagging Lin. Ft. \$23.00 1462 \$33,626.00  
 2" Lagging Lin. Ft. \$20.00 1230 \$24,600.00  
 1-1/2" Lagging Lin. Ft. \$18.00 994 \$17,892.00  
 1-1/4" Lagging Lin. Ft. \$16.00 2563 \$41,008.00  
 TOTAL \$136,864.00

\*\*\*\*\*  
 2" Elbow, Tee, Wye Each \$30.00 \$0.00  
 10" Elbow, Tee, Wye Each \$45.00 \$0.00  
 2" Elbow, Tee, Wye Each \$40.00 3 \$120.00  
 2" Elbow, Tee, Wye Each \$35.00 32 \$1,120.00  
 4" Elbow, Tee, Wye Each \$30.00 63 \$1,890.00  
 2" Elbow, Tee, Wye Each \$0.00 185 \$0.00  
 2" Elbow, Tee, Wye Each \$25.00 606 \$15,150.00  
 1-1/2" Elbow, Tee, Wye Each \$24.00 126 \$3,024.00  
 1-1/4" Elbow, Tee, Wye Each \$23.00 3027 \$69,621.00  
 TOTAL \$90,925.00

\*\*\*\*\*  
 2" Roof Sump Each \$60.00 \$0.00  
 10" Roof Sump Each \$55.00 \$0.00  
 2" Roof Sump Each \$50.00 \$0.00  
 4" Roof Sump Each \$0.00 \$0.00  
 2" Roof Sump Each \$0.00 \$0.00  
 2" Roof Sump Each \$0.00 \$0.00  
 2" Roof Sump Each \$0.00 \$0.00  
 1-1/2" Roof Sump Each \$0.00 \$0.00  
 1-1/4" Roof Sump Each \$0.00 \$0.00  
 TOTAL \$0.00

\*\*\*\*\*  
 2" Hangers Each \$0.00 \$0.00  
 10" Hangers Each \$0.00 \$0.00  
 8" Hangers Each \$0.00 \$0.00  
 2" Hangers Each \$40.00 1 \$40.00  
 2" Hangers Each \$35.00 4 \$140.00  
 3" Hangers Each \$34.00 9 \$306.00  
 2" Hangers Each \$33.00 9 \$297.00  
 1-1/2" Hangers Each \$32.00 13 \$416.00  
 1-1/4" Hangers Each \$31.00 15 \$465.00  
 TOTAL \$1,664.00

\*\*\*\*\*  
 2" Valves Each \$50.00 \$0.00  
 10" Valves Each \$45.00 \$0.00  
 2" Valves Each \$40.00 \$0.00  
 2" Valves Each \$35.00 \$0.00  
 4" Valves Each \$30.00 \$0.00

1"	Valves	Each	\$25.00		\$0.00
2"	Valves	Each	\$24.00		\$0.00
1-1/2"	Valves	Each	\$23.00		\$0.00
1-1/4"	Valves	Each	\$22.00		\$0.00
	TOTAL				\$0.00

\*\*\*\*\*

2"	P-Trap/C.O.	Each	\$60.00		\$0.00
3"	P-Trap/C.O.	Each	\$55.00		\$0.00
8"	P-Trap/C.O.	Each	\$50.00	1	\$50.00
1"	P-Trap/C.O.	Each	\$45.00		\$0.00
1"	P-Trap/C.O.	Each	\$40.00		\$0.00
1"	P-Trap/C.O.	Each	\$35.00	3	\$105.00
2"	P-Trap/C.O.	Each	\$30.00		\$0.00
1-1/2"	P-Trap/C.O.	Each	\$29.00	1	\$29.00
1-1/4"	P-Trap/C.O.	Each	\$28.00	2	\$56.00
	TOTAL				\$240.00

\*\*\*\*\*

2"	Flg./Exp. Jt.	Each	\$55.00		\$0.00
10"	Flg./Exp. Jt.	Each	\$50.00		\$0.00
7"	Flg./Exp. Jt.	Each	\$45.00		\$0.00
1"	Flg./Exp. Jt.	Each	\$40.00		\$0.00
1"	Flg./Exp. Jt.	Each	\$37.00		\$0.00
3"	Flg./Exp. Jt.	Each	\$35.00		\$0.00
1"	Flg./Exp. Jt.	Each	\$33.00		\$0.00
1-1/2"	Flg./Exp. Jt.	Each	\$30.00		\$0.00
1-1/4"	Flg./Exp. Jt.	Each	\$27.00		\$0.00
	TOTAL				\$0.00

\*\*\*\*\*

12"	Union/Coupling	Each	\$50.00		\$0.00
10"	Union/Coupling	Each	\$45.00		\$0.00
1"	Union/Coupling	Each	\$40.00		\$0.00
1"	Union/Coupling	Each	\$35.00		\$0.00
4"	Union/Coupling	Each	\$30.00		\$0.00
1"	Union/Coupling	Each	\$27.00		\$0.00
1"	Union/Coupling	Each	\$25.00		\$0.00
1-1/2"	Union/Coupling	Each	\$24.00		\$0.00
1-1/4"	Union/Coupling	Each	\$23.00		\$0.00
	TOTAL				\$0.00

\*\*\*\*\*

12"	Wall/F1. Sleeve	Each	\$75.00		\$0.00
10"	Wall/F1. Sleeve	Each	\$70.00		\$0.00
1"	Wall/F1. Sleeve	Each	\$65.00		\$0.00
6"	Wall/F1. Sleeve	Each	\$60.00		\$0.00
1"	Wall/F1. Sleeve	Each	\$55.00		\$0.00
1"	Wall/F1. Sleeve	Each	\$50.00		\$0.00
2"	Wall/F1. Sleeve	Each	\$45.00		\$0.00
1-1/2"	Wall/F1. Sleeve	Each	\$44.00		\$0.00
1-1/4"	Wall/F1. Sleeve	Each	\$40.00		\$0.00
	TOTAL				\$0.00

\*\*\*\*\*

	Elect. Wrap	Lin. Ft.	\$8.00		\$0.00
	Heat Exchanger				
	Hot	Sq. Ft.	\$23.00	401	\$9,223.00
	Cold	Sq. Ft.	\$18.00		\$0.00
	Duct Insulation				
	Paper	Sq. Ft.	\$18.00		\$0.00

TOTAL	\$27,259.00
-------	-------------

GRAND TOTALS	\$256,952.00
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\*\*\*\*\*

**APPENDIX A**  
**COUNT SHEETS FOR EACH ROOM**

# Floortile Summary

		Sizes								Totals
		12" or More	10"	8"	6"	4"	3"	2"	1-1/2" or Less	
Number of Lines										
Type of Fitting	Elbows									
	"Y"									
	"T"									
	Valves									
	P-Trap									
	Floor Flange									
	Clean Outs									
	Expansion Joints									
	Coupling									
Pipe Wrap in LF										
Transite Pipe in LF										
Flooring in SF		8,000 sf. brown								8000
Ceiling and/or Insulation LF										
Acoustical treatment or other insulating materials in SF										
Transite Board in SF										
Linoleum		Green in elevator 16 sf								16

Comments:

**SUB-BASEMENT**

Pool  
Tunnel

Sizes

Totals

12" or More	10"	8"	6"	4"	3"	2"	1-1/2"	1-1/4" or Less
-------------------	-----	----	----	----	----	----	--------	----------------------

Number of Lines

Type of Fitting

Elbows

"Y"

"T"

Valves

P-Trap

Floor Flange

Clean Outs

Expansion Joints

Coupling

Hangers

End caps

Pipe Wrap in LF

Transite Pipe in LF

Flooring in SF

Ceiling and/or Insulation LF

Acoustical treatment or  
other insulating materials  
in SF

Transite Board in SF

Comments:

Crawl Space under unused Lockers		Sizes									Totals
		12" or More	10"	8"	6"	4"	3"	2"	1-1/2"	1-1/4" or Less	
Number of Lines											
Type of Fitting	Elbows							2	4	3	9
	"Y"										
	"T"								2		2
	Valves									1	1
	P-Trap										
	Floor Flange										
	Clean Outs										
	Expansion Joints										
	Coupling										
	Hangers							1	5		6
	End caps								1	1	2
Pipe Wrap in LF								12	38	12	62
Transite Pipe in LF											
Flooring in SF											
Ceiling and/or Insulation LF											
Acoustical treatment or other insulating materials in SF											
Transite Board in SF											

Comments:



Crawl Space Subbasement under men's bathroom		Sizes								Totals	
		12" or More	10"	8"	6"	4"	3"	2"	1-1/2"		1-1/4" or Less
Number of Lines											
Type of Fitting	Elbows					1		13	2	14	30
	"Y"										
	"T"						2	6	1	3	12
	Valves									1	1
	P-Trap										
	Floor Flange										
	Clean Outs										
	Expansion Joints										
	Coupling										
Pipe Wrap in LF							35	19		22	76
Transite Pipe in LF											
Flooring in SF											
Ceiling and/or Insulation LF											
Acoustical treatment or other insulating materials in SF											
Transite Board in SF											

Comments:

Fire Pump Room		Sizes								Totals	
		12" or More	10"	8"	6"	4"	3"	2"	1-1/2"		1-1/4" or Less
Number of Lines											
Type of Fitting	Elbows					10	1	8	5	12	36
	"Y"							3			3
	"T"					5	1	7	3	1	17
	Valves							5	1		6
	P-Trap										
	Floor Flange										
	Clean Outs										
	Expansion Joints										
	Coupling										
	Hangers					1	2	4			7
Pipe Wrap in LF						16	15	58	30	6	125
Transite Pipe in LF											
Flooring in SF											
Ceiling and/or Insulation LF											
Acoustical treatment or other insulating materials in SF											
Transite Board in SF											

Comments:

**BASEMENT**



## Responsibilities of the Federal Agency or their Delegate Following an Adverse Effect Finding

The finding of adverse effect will prompt the federal agency or their delegate, hereinafter referred to as "Agency", to consult further to resolve the adverse effect pursuant to 36 CFR § 800.6 by proceeding with the following steps:

- (1) **Continue Consultation with the SHPO.** Per 36 CFR § 800.6(a), the Agency shall continue consultation with the SHPO and other consulting parties to develop and evaluate alternatives or modifications to the undertaking that could avoid, minimize or mitigate adverse effects on historic properties. The Agency shall submit a case study (see enclosed case study guidance) outlining these efforts for review by the SHPO.
- (2) **Public Comment.** In accordance with 36 CFR § 800.6(a)(4), the Agency shall make information regarding this finding available to the public, providing the public with an opportunity to express their views on resolving adverse effects of the undertaking. Pursuant to 36 CFR § 800.11(e), copies or summaries of any views provided by consulting parties and the public shall be made available to the SHPO as part of the case study outlined in (1).
- (3) **Notify the Advisory Council on Historic Preservation.** The Agency shall immediately notify the Advisory Council on Historic Preservation (Advisory Council), Old Post Office Building, 1100 Pennsylvania Avenue NW, Suite 809, Washington, D.C. 20004, of the adverse effect finding per 36 CFR § 800.6 (a)(1). The notification to the Advisory Council should be similar to the project information submitted to this office and should include the following documentation as outlined in 36 CFR § 800.11(e).
  - A description of the undertaking, specifying the federal involvement, and its area of potential effects, including photographs, maps and drawings, as necessary.
  - A description of the steps taken to identify historic properties.
  - A description of the affected historic properties, including information on the characteristics that qualify them for inclusion in the National Register of Historic Places.
  - A description of the undertaking's effects on historic properties.
  - An explanation of why the criteria of adverse effect were found applicable or inapplicable, including any conditions or future actions to avoid, minimize or mitigate adverse effects.
  - Copies or summaries of any views provided by consulting parties and the public.
- (4) **Invite Advisory Council to Participate.** The Agency shall invite the Advisory Council to participate in consultation if the undertaking will affect a National Historic Landmark, if a Programmatic Agreement will be developed as a result of the finding of adverse effect, or if the Agency wants the Advisory Council to participate in consultation. The Advisory Council will advise of its decision to participate in consultation within fifteen (15) days of receipt of this notification or other request. If the Advisory Council chooses not to participate in consultation, the Agency shall resolve the adverse effect without Advisory Council participation and pursuant to 36 CFR § 800.6(b)(1).
- (5) **Resolve Adverse Effects and Execute an MOA.** If the Agency, the SHPO and, if applicable, the Advisory Council agree on how the adverse effects will be resolved, they shall execute a Memorandum of Agreement (MOA) pursuant to 36 CFR § 800.6(c).
- (6) **Failure to Agree on the Terms of an MOA.** If the Agency and the SHPO fail to agree on the terms of the MOA, the Agency shall request the Advisory Council to join the consultation. If the Advisory Council decides to join the consultation, the Agency shall proceed in accordance with 36 CFR § 800.6(b)(2). If the Advisory Council decides not to join the consultation, the Advisory Council will notify the Agency and proceed to comment in accordance with 36 CFR § 800.7.

The regulations guiding the Section 106 process are available  
online at <http://www.achp.gov/regs-rev04.pdf>.



## HOW TO DEAL WITH AN ADVERSE EFFECT

### Why is this happening to me?

In the 1960s, Congress observed that the spirit of the Nation is reflected in its heritage and that historically significant properties were being altered or lost at an alarming rate. Congress declared that preserving the Nation's heritage was in the public interest and consequently passed the National Historic Preservation Act of 1966 (NHPA). The NHPA sets as national policy the practice of giving federal assistance to state and local governments, as well as encouraging historic preservation at the state and local levels.

In 1970, Michigan's Legislature similarly declared historic preservation to be a public purpose. To implement the State's policy, the Legislature enacted the Local Historic District Act (LHDA), which provides for the preservation of Michigan's local historic resources, the creation of historic district commissions, and the designation of historic districts.

Section 106 is a system of checks and balances ensuring that historic resources receive due consideration when federal undertakings are carried out. The process is codified in federal regulations located at 36 C.F.R. Part 800. All federal undertakings that have the *potential* to impact a historic resource, no matter what their size or scope, are subject to Section 106. We encourage you to start the consultation process with our office as early in as possible. Section 106 is intended to be a planning process and is most effective and efficient when undertaken early enough to implement changes to a project to avoid or minimize adverse effects to historic properties. A federal project cannot be completed without having satisfied Section 106.

### What do I do now?

Compliance with the Section 106 process is the responsibility of the Federal Agency (Agency) sponsoring the project. In some cases, this responsibility has been delegated to a local unit of government. When there is a determination of adverse effect, the SHPO deals directly with those in a position of responsibility for the project. For example, if you are an applicant for federal funds or a consultant, your role may be limited regarding resolving adverse effects. Each Agency handles it differently; ask your federal agency representative about who should handle the following steps. If there is any additional information that you think the SHPO should consider regarding the project, we recommend that you contact us.

- 1) **Consulting Parties:** The Agency has to identify the "consulting parties" in the project and get them involved in resolving the adverse effect. Typically consulting parties might include Native American tribes, citizen groups, local government officials, historical societies, historic district commissions, affected property owners, etc. The Section 106 regulations define consulting parties at 36 CFR Part 800.3(e) and 800.6(a)(2). Anyone with a demonstrated interest in the project can submit a written request to the Agency to become a consulting party.
- 2) **Public Comment:** The public has the right to comment on the project and be involved in resolving adverse effects. The Agency must inform the public about the adverse effect and seek their input about resolving the adverse effects. There is no definition of how the public should be informed, methods should correspond to the nature and scale of an undertaking. Large or controversial projects may require public meetings, public notices in the newspaper, etc. For smaller projects a notice in the newspaper or letters to residents of an affected area may be sufficient. Public comment obtained in compliance with the National Environmental Policy Act (NEPA) is acceptable if the public was informed that there would be an adverse effect to a historic property.

Public comment must be sought and obtained in a meaningful way. Lawsuits have resulted because a group of citizens did not believe that their views were adequately sought or considered and their right to comment was denied. The SHPO takes public comment seriously and comments contribute to our evaluation of projects. If there is either a lot of concern with or opposition to the project, the Agency should want to re-evaluate what it is doing and how they plan to do it.

- 3) **Case Study of Alternatives:** The Agency must submit a case study to the SHPO that demonstrates its efforts to consider alternatives to avoid, minimize or mitigate the adverse effect. An Environmental Assessment (EA) or Environmental Impact Statement (EIS) completed in compliance with NEPA can serve this purpose, although the SHPO may require additional information. The consulting parties should be involved in developing this case study and the study should include public comment.



## HOW TO DEAL WITH AN ADVERSE EFFECT

- 4) **Advisory Council:** The Agency must notify the Advisory Council on Historic Preservation (Council) of the determination of adverse effect. The SHPO letter of adverse effect details the information to be submitted to the Council. The Council must be invited to participate in consultation. The Council is required by law to reply within fifteen days regarding its decision to participate. If the Agency does not hear from them, the Agency can assume that the Council does not wish to be involved.
- 5) **Negotiate Mitigation:** After the SHPO has accepted the case study, reviewed the public comment and has agreed that the adverse effect(s) cannot be avoided, the Agency consults with the SHPO and other consulting parties regarding how to mitigate the adverse effect. Mitigation means how the Agency will compensate for the adverse effect. Types of mitigation may vary depending on the nature of the project. The SHPO encourages all parties to be open-minded and creative when considering mitigation. Keep in mind that this is a negotiation process.
- 6) **Memorandum of Agreement:** If the Agency, the SHPO, and the Council (if applicable) agree as to how impacts will be mitigated, a Memorandum of Agreement (MOA) is developed. The MOA is a legally-binding document, outlining the "who", "what", "when", "where" and "how" of mitigation. Its terms must be carried out. Consulting parties are invited to concur in the MOA. Once the MOA is signed by all parties, the Section 106 process is complete and the project may move forward in accordance with the MOA.

### What happens if there is no agreement on how to resolve adverse effects?

Sometimes the Agency and the SHPO don't agree. For example, the SHPO may not think the impacts to historic resources are justified, or that the Agency has fully evaluated the alternatives, or the proposed mitigation is adequate, or the Agency may refuse to carry out certain types of mitigation. In a case like this, the Agency can invite the Council to participate in an effort to resolve the differences.

Very rarely, a consulting party may terminate its involvement in the process. If that happens, Section 106 must still be satisfied. If the SHPO terminates consultation, then the Agency continues consultation with the Council. If the Agency terminates consultation, then the Section 106 process must start over or the project dies. A federal project cannot be completed without having satisfied Section 106. For this reason, good consultation and negotiation resulting in agreement are critical to a successful outcome.

### Frequently Asked Questions about Adverse Effects

#### Why is my project an "adverse effect"?

An adverse effect occurs because the project negatively impacts a historic resource. Examples of adverse effect include demolition, abandonment, neglect, or change in use or appearance of the resource.

#### Why do I have to do this?

Federal law requires Section 106 for projects with federal involvement, i.e. funding, permitting or licensing. It is the SHPO's and each Agency's responsibility to support the public's interest in historic resources. Projects undertaken without going through the Section 106 process or those that have poorly implemented the process (such as insufficient public comment, ignoring potential consulting parties, etc.) have been subject to litigation, costly delays, and other penalties.

#### Why is the SHPO trying to stop my project?

The SHPO has no authority to "stop" projects. That authority rests solely with the federal agency responsible for the project.

#### Why is my project being singled out?

Your project is not being singled out. The Section 106 process requires that federal projects consider all effects of the project prior to the implementation of the project. A determination of adverse effect accounts for approximately 1% of the projects the SHPO reviews each year.



## HOW TO DEAL WITH AN ADVERSE EFFECT

### **Why do I have to deal with the SHPO?**

The SHPO is a mandatory consulting party in the Section 106 process.

### **What if I take the federal portion out of my overall project?**

Once a project receives federal assistance, the entire project becomes a federal undertaking subject to Section 106. For example, suppose you are funding a project with 90% state and local funds and only 10% federal dollars. The project is still a federal project. The project is also a federal project even if the federal dollars are passed through a non-profit organization or state or local government agency. You cannot then fund X portion of the project with local or private dollars just to avoid the federal regulations.

If you are wondering if your project is subject to Section 106, try this test: but for the federal portion of the project, could you still achieve the same goal? Sometimes this becomes a very gray area, open to interpretation. If that is the case, ask your federal agency or the SHPO for assistance.

### **What if I just "remove" historic resources so they will not be present when I initiate my project?**

The SHPO is often aware that a historic resource was present at the site or is alerted to the fact by a concerned citizen. Occasionally, someone demolishes a historic resource with state, local or private dollars and then applies for federal assistance. When the project is then submitted to the SHPO, it is indicated that the project will occur on vacant land. This situation is known as "anticipatory demolition." When this happens, the federal agency responsible for the project is required to determine whether or not the action qualified as anticipatory demolition. The federal agency is responsible for determining penalties for anticipatory demolition. If litigation occurs over anticipatory demolition, the project could be subject to costly delays or be cancelled altogether.

### **What if I know there are plans to demolish a historic resource in the near future? It will be gone anyway, so why should it be a factor?**

Impacts to a historic resource are considered on a project-specific basis. You may know that the owner of a historic resource plans to demolish the property next month. However, when a project is submitted for 106 Review the SHPO considers the current status of the resource. Why? Because the plans to demolish the property may never materialize. Similarly, when we evaluate a property for its historic significance (National Register eligibility), the SHPO does not consider that it might be restored in the future.

### **What if I disagree with the SHPO's opinion regarding the eligibility of a historic resource?**

The Keeper of the National Register of Historic Places ultimately settles disputes. Disputes regarding the effects of a project on historic resources are handled in the same way as a failure to resolve adverse effects (see above). The Agency must present its case and supporting documentation to the Keeper and allow sufficient time for a review. Those outside the circle of consulting parties should present their case directly to the SHPO and the federal agency.

### **What if I disagree with the SHPO's opinion regarding the effects of a project on a historic resource?**

Disputes regarding the effects of a project on historic resources are handled in the same way as a failure to resolve adverse effects. Individuals or groups who are not consulting parties should present their case directly to both the SHPO and the Agency. If you think that there is information that the SHPO should consider that has not been presented to us for review, please contact our office to provide the SHPO with your information.

### **How do I become a consulting party?**

Federal law specifies that certain agencies, groups and individuals are mandatory consulting parties, including the SHPO, certain agencies carrying out federal programs, and Native American tribes. If you are not a consulting party per federal law and you want to become a consulting party, you should make a



## HOW TO DEAL WITH AN ADVERSE EFFECT

written request directly to the federal agency responsible for the project. Be sure to provide information to support why you feel you should have this status.

### What is the role of the Advisory Council on Historic Preservation (ACHP)?

The Advisory Council is an independent federal agency that promotes the preservation, enhancement, and productive use of our nation's historic resources, and advises the President and Congress on national historic preservation policy. The Council may choose to become involved in projects that are controversial or significant at the national level or when an entire federal program is being evaluated for impacts on historic resources. For more information, visit [www.achp.gov](http://www.achp.gov).

### Who writes the Memorandum of Agreement (MOA)?

While no specific consulting party is required to write an MOA, the SHPO tends to have the most experience writing MOA's. Once a draft is written, it is reviewed by all the signatories and revised until finalized.

### Who carries out the responsibilities of the MOA?

The MOA outlines the terms and conditions for mitigating the adverse effect a project. Mitigation measures are determined on a project by project basis through negotiation between the federal agency and the SHPO. Mitigation may either reduce the degree to which the project adversely affects the historic resource, or it may offset the adverse effect through other measures. It is the responsibility of the Agency assisting the project to ensure that all terms and conditions outlined in the MOA are carried out, although a particular term or condition described in the MOA may be assigned to a consultant, the SHPO, the applicant for federal assistance, or another consulting party. Although there may be particular costs incurred and time spent implementing the MOA, federal agencies generally consider mitigation an eligible project cost that can be included in the overall project budget.

### How long is this process?

The length of time it takes to resolve adverse effects and reach agreement on an MOA depends on many factors. Examples include the size or complexity of the project, the level of public interest in, or controversy, surrounding the project and the experience and attitudes of the consulting parties.

Some factors may hold up the Section 106 process, including but not limited to:

- No consideration of alternatives to avoid an adverse effect. The SHPO always encourages early consideration of alternatives and coordination with consulting parties. The Section 106 process requires agencies to consider alternatives that might avoid or minimize impacts to historic resources. This must be done even if you have already bought the land, signed the contract or let the project out for bid. If you do not think there are any alternatives, you must be prepared to substantiate your assertions with factual data. The SHPO always encourages early consideration of alternatives and coordination with consulting parties.
- Failure to consult with Indian Tribes: Federal law requires that federal agencies, in carrying out their Section 106 responsibilities, consult with any Indian tribe that attaches religious and cultural significance to historic properties that may be affected by an undertaking.
- Public comment. The public plays an important role in the Section 106 process and must be given adequate time to provide meaningful comment on a project and possible alternatives.
- Negotiating mitigation. No MOA will be signed and the Section 106 process will not be complete until all parties are satisfied with the process outcome. It can take time for all to agree on what is appropriate and feasible to mitigate the loss of a historic resource.



Location (Lat/Lon)	N 42° 43.717' W 084° 33.396'
Location (UTM)	16 N 0700037 4733574
Datum	WGS 84
Elevation	860 ft
Direction	94°
Time	02/16/2008 9:59:02 AM
Time Zone	(GMT-05:00) Eastern Standard Time
Camera Make	RICOH
Camera Model	Caplio 500SE
Camera Software	2.38 Rev 4
Original File	<a href="#">RIMG0032.JPG</a>

## AKT Project 301 West Lenawee, Lansing, MI

Grp Tagged Photo : RIMG0033\_tag.jpg



Title

AKT Project 301 West Lenawee, Lansing, MI

Location (Lat/Lon)	N 42° 43.717' W 084° 33.396'
Location (UTM)	16 N 0700037 4733574
Datum	WGS 84
Elevation	860 ft
Direction	37°
Time	02/16/2008 9:59:02 AM
Time Zone	(GMT-05:00) Eastern Standard Time
Camera Make	RICOH
Camera Model	Caplio 500SE
Camera Software	2.38 Rev 4
Original File	<a href="#">RIMG0033.JPG</a>



## AKT Project 301 West Lenawee, Lansing, MI

GPS Tagged Photo : RIMG0034\_tag.jpg



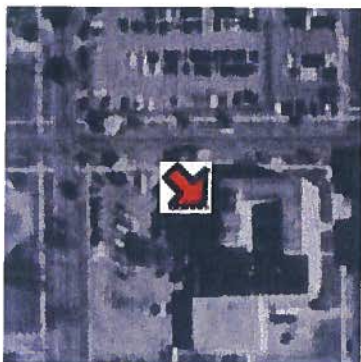
Title	AKT Project 301 West Lenawee, Lansing, MI
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Location (UTM)	16 N 0700049 4733566
Datum	WGS 84
Elevation	886 ft
Direction	296°
Time	02/16/2008 9:59:31 AM
Time Zone	(GMT-05:00) Eastern Standard Time
Camera Make	RICOH
Camera Model	Caplio 500SE
Camera Software	2.38 Rev 4
Original File	<a href="#">RIMG0034.JPG</a>



## AKT Project 301 West Lenawee, Lansing, MI

GrS Tagged Photo : RIMG0035\_tag.jpg



Title

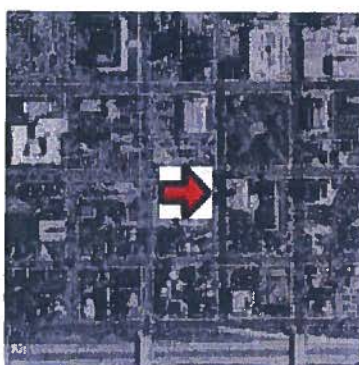
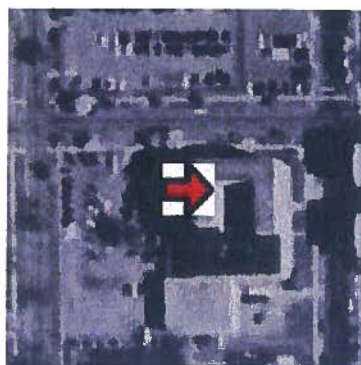
AKT Project 301 West Lenawee, Lansing, MI

Location (Lat/Lon)	N 42° 43.712' W 084° 33.386'
Location (UTM)	16 N 0700050 4733565
Datum	WGS 84
Elevation	863 ft
Direction	142°
Time	02/16/2008 9:59:39 AM
Time Zone	(GMT-05:00) Eastern Standard Time
Camera Make	RICOH
Camera Model	Caplio 500SE
Camera Software	2.38 Rev 4
Original File	<a href="#">RIMG0035.JPG</a>



## AKT Project 301 West Lenawee, Lansing, MI

Grp Tagged Photo : RIMG0036\_tag.jpg



Title

**AKT Project 301 West Lenawee, Lansing, MI**



Location (Lat/Lon)	N 42° 43.707' W 084° 33.377'
Location (UTM)	16 N 0700063 4733556
Datum	WGS 84
Elevation	860 ft
Direction	87°
Time	02/16/2008 9:59:59 AM
Time Zone	(GMT-05:00) Eastern Standard Time
Camera Make	RICOH
Camera Model	Caplio 500SE
Camera Software	2.38 Rev 4
Original File	<a href="#">RIMG0036.JPG</a>

## **Appendix B**

### **Soil Boring Logs**

# AKTPEERLESS

environmental services

115 W. Allegan, Suite 900, Lansing, MI 48933  
Phone: (517)482-9227 Fax: (517) 482-9229


## BORING LOG

Ingham County  
301 W. Lenawee Street  
City of Lansing, Michigan  
PROJECT NUMBER: 5700L & 5700L2

B-1

Drawn By: MAR  
Date: 02/19/08

DRILLING COMPANY:	AKT Peerless	WEATHER:	light snow, 32 degrees
TECHNICIAN:	Pat Hall	BORING DEPTH:	20 feet bgs
DATE DRILLED:	02/18/08	DEPTH TO GW:	6 feet bgs
DRILLING METHOD:	Geoprobe	SCREEN INTERVAL:	5 to 10 feet bgs
		SCREEN MATERIAL:	natural

DEPTH FEET	SAMPLE INTERVAL	% RECOVERY	PID VALUE	USCS SOIL CLASS.	COLOR	GEOLOGIC DESCRIPTION	MOISTURE	TEMPORARY WELL DIAGRAM
						3 inches Asphalt		
2		100	0	FILL	brown & gray	CLAY: sandy, trace foundry fill, brick and gravel	M	 <p>PVC RISER</p> <p>PVC SCREEN</p>
4				CL	lt. brown	Silty CLAY: trace fine sand and fine gravel	M	
6		100	0	SM	lt. brown	SAND: with silt	W	
				CL	brown	Silty CLAY: trace fine to coarse sand	M	
8						same as above		
10		100	0					
12						same as above	M	
14		100	0					
16						same as above	M	
18		100	0					
20						End of boring at 20 feet below ground surface.		

# AKTPEERLESS

environmental services

115 W. Allegan, Suite 900, Lansing, MI 48933  
Phone: (517)482-9227 Fax: (517) 482-9229

## BORING LOG

Ingham County  
301 W. Lenawee Street  
City of Lansing, Michigan  
PROJECT NUMBER: 5700L & 5700L2

B-2

Drawn By: MAR  
Date: 02/19/08

DRILLING COMPANY:	AKT Peerless	WEATHER:	light snow, 32 degrees
TECHNICIAN:	Pat Hall	BORING DEPTH:	20 feet bgs
DATE DRILLED:	02/18/08	DEPTH TO GW:	n/a
DRILLING METHOD:	Geoprobe	SCREEN INTERVAL:	n/a
		SCREEN MATERIAL:	n/a

DEPTH FEET	SAMPLE INTERVAL	% RECOVERY	PID VALUE	USCS SOIL CLASS.	COLOR	GEOLOGIC DESCRIPTION	MOISTURE	TEMPORARY WELL DIAGRAM
						3 inches Asphalt		
				FILL	brown	SAND: fine to coarse grained	M	
				FILL	brown	CLAY: sandy, trace silt, gravel and brick	M	
2		100	0					
4				FILL	gray	newspaper and concrete	M	
				CL	lt brown	CLAY: sandy, trace fine gravel, some silt layers		
6		100	0					
8						same as above	M	
10		100	0					
12						same as above	M	
14		100	0					
16						same as above	M	
18		100	0					
20						End of boring at 20 feet below ground surface.	M	

# AKTPEERLESS

environmental services

115 W. Allegan, Suite 900, Lansing, MI 48933  
Phone: (517)482-9227 Fax: (517) 482-9229

## BORING LOG

Ingham County  
301 W. Lenawee Street  
City of Lansing, Michigan  
PROJECT NUMBER: 5700L & 5700L2

B-3

Drawn By: MAR  
Date: 02/19/08

DRILLING COMPANY:	AKT Peerless	WEATHER:	light snow, 32 degrees
TECHNICIAN:	Pat Hall	BORING DEPTH:	20 feet bgs
DATE DRILLED:	02/18/08	DEPTH TO GW:	n/a
DRILLING METHOD:	Geoprobe	SCREEN INTERVAL:	n/a
		SCREEN MATERIAL:	n/a

DEPTH FEET	SAMPLE INTERVAL	% RECOVERY	PID VALUE	USCS SOIL CLASS.	COLOR	GEOLOGIC DESCRIPTION	MOISTURE	TEMPORARY WELL DIAGRAM
				GW	brown	GRAVEL: trace fine to coarse sand	M	
				SP	brown	SAND: fine grained	M	
2		100	0					
4				CL	brown	CLAY: sandy, trace silt and fine gravel	M	
6		100	3					
8							M	
10		100	3	CL	gray	CLAY: sandy, with silt layers	M	
12			21					
			44					
12			60			same as above	M	
14		100	133					
			119					
			30					
16			8			same as above	M	
			0					
18		100	0					
20						End of boring at 20 feet below ground surface.		

# AKTPEERLESS

environmental services

115 W. Allegan, Suite 900, Lansing, MI 48933  
Phone: (517)482-9227 Fax: (517) 482-9229

## BORING LOG

Ingham County  
301 W. Lenawee Street  
City of Lansing, Michigan  
PROJECT NUMBER: 5700L & 5700L2

B-4

Drawn By: MAR  
Date: 02/19/08

DRILLING COMPANY:	AKT Peerless	WEATHER:	light snow, 32 degrees
TECHNICIAN:	Pat Hall	BORING DEPTH:	20 feet bgs
DATE DRILLED:	02/18/08	DEPTH TO GW:	n/a
DRILLING METHOD:	Geoprobe	SCREEN INTERVAL:	n/a
		SCREEN MATERIAL:	n/a

DEPTH FEET	SAMPLE INTERVAL	% RECOVERY	PID VALUE	USCS SOIL CLASS.	COLOR	GEOLOGIC DESCRIPTION	MOISTURE	TEMPORARY WELL DIAGRAM
						3 inches Asphalt		
2		75	0	FILL	brown	CLAY: sandy, trace gravel	M	
4				FILL	brown	CLAY: sandy, trace gravel, concrete, brick, and foundry fill	M	
6		100	0	CL	brown	CLAY: sandy, trace silt	M	
8						same as above	M	
10		100	0					
12				CL	gray	CLAY: silty, trace sand, with silt layers	M	
14		100	0	CL	brown	CLAY: sandy, trace silt and fine gravel	M	
16						same as above	M	
18		100	0					
20						End of boring at 20 feet below ground surface.		

# AKTPEERLESS

environmental services

115 W. Allegan, Suite 900, Lansing, MI 48933  
Phone: (517)482-9227 Fax: (517) 482-9229

## BORING LOG

Ingham County  
301 W. Lenawee Street  
City of Lansing, Michigan  
PROJECT NUMBER: 5700L & 5700L2

B-5

Drawn By: MAR  
Date: 02/19/08

DRILLING COMPANY:	AKT Peerless	WEATHER:	snow, 32 degrees
TECHNICIAN:	Pat Hall	BORING DEPTH:	20 feet bgs
DATE DRILLED:	02/18/08	DEPTH TO GW:	n/a
DRILLING METHOD:	Geoprobe	SCREEN INTERVAL:	n/a
		SCREEN MATERIAL:	n/a

DEPTH FEET	SAMPLE INTERVAL	% RECOVERY	PID VALUE	USCS SOIL CLASS.	COLOR	GEOLOGIC DESCRIPTION	MOISTURE	TEMPORARY WELL DIAGRAM
						3 inches Asphalt		
				FILL	brown	SAND: trace fine gravel	M	
				FILL	dk brown	CLAY: sandy, trace brick, concrete and foundry fill	M	
2		100	0					
4						same as above	M	
6		100	0	CL	brown	CLAY: sandy, trace fine to medium sand and silt	M	
8						same as above		
10		100	0					
12				SM	gray	SAND: fine grained, with silt	M	
				CL	brown	CLAY: sandy, trace gravel	M	
						same as above	M	
14		100	0					
16						same as above	M	
18		100	0					
20						End of boring at 20 feet below ground surface.		



# AKTPEERLESS

environmental services

115 W. Allegan, Suite 900, Lansing, MI 48933  
Phone: (517)482-9227 Fax: (517) 482-9229

## BORING LOG

Ingham County  
301 W. Lenawee Street  
City of Lansing, Michigan  
PROJECT NUMBER: 5700L & 5700L2

B-6

Drawn By: MAR  
Date: 02/19/08

DRILLING COMPANY:	AKT Peerless	WEATHER:	snow, 32 degrees
TECHNICIAN:	Pat Hall	BORING DEPTH:	16 feet bgs
DATE DRILLED:	02/18/08	DEPTH TO GW:	n/a
DRILLING METHOD:	Geoprobe	SCREEN INTERVAL:	n/a
		SCREEN MATERIAL:	n/a

DEPTH FEET	SAMPLE INTERVAL	% RECOVERY	PID VALUE	USCS SOIL CLASS.	COLOR	GEOLOGIC DESCRIPTION	MOISTURE	TEMPORARY WELL DIAGRAM
						3 inches Asphalt		
2		100	0	FILL	brown & dk brown	CLAY: sandy, trace gravel, bricks, concrete, and wood	M	
4								
6		100	0	CL	lt brown	CLAY: sandy, trace silt and fine gravel	M	
8						same as above	M	
10		100	0					
12						same as above	M	
14		100	0					
16						End of boring at 16 feet below ground surface.		
18								
20								



# AKTPEERLESS

environmental services

115 W. Allegan, Suite 900, Lansing, MI 48933  
Phone: (517) 482-9227 Fax: (517) 482-9229

## BORING LOG

Ingham County  
301 W. Lenawee Street  
City of Lansing, Michigan  
PROJECT NUMBER: 5700L & 5700L2

**B-7**

Drawn By: MAR  
Date: 02/19/08

DRILLING COMPANY:	AKT Peerless	WEATHER:	snow, 32 degrees
TECHNICIAN:	Pat Hall	BORING DEPTH:	16 feet bgs
DATE DRILLED:	02/18/08	DEPTH TO GW:	n/a
DRILLING METHOD:	Geoprobe	SCREEN INTERVAL:	n/a
		SCREEN MATERIAL:	n/a

DEPTH FEET	SAMPLE INTERVAL	% RECOVERY	PID VALUE	USCS SOIL CLASS.	COLOR	GEOLOGIC DESCRIPTION	MOISTURE	TEMPORARY WELL DIAGRAM
						2 inches Asphalt		
				FILL	brown	GRAVEL: with sand	M	
				FILL	brown	CLAY: sandy, trace gravel and bricks	M	
2		100	0					
4						same as above	M	
6		100	0	CL	brown & gray	CLAY: silty, trace fine sand	M	
8				CL	brown	CLAY: sandy, trace gravel	M	
10		100	0					
12						same as above	M	
14		100	0					
16						End of boring at 16 feet below ground surface.		
18								
20								

## **Appendix C**

### **Laboratory Analytical Reports**

Thursday, February 21, 2008

Fibertec Project Number: 27391  
Project Identification: 5700L  
Submittal Date: 2/18/2008

Ms. Jennifer Bowyer  
AKT Peerless Environ. Svcs, Inc. - Lansing  
115 W. Allegan, Ste. 410  
Capital Hall Bldg.  
Lansing, MI 48933

Dear Ms. Bowyer,

Thank you for selecting Fibertec Environmental Services as your analytical laboratory. The samples you submitted have been analyzed by NELAC compliant methodologies and the results compiled in the attached report. Any exceptions to compliance are noted in the report. These results apply only to those samples submitted.

If you have any questions regarding these results or if we may be of further assistance to you, please contact me at (517) 699-0345. Please note samples will be disposed of 30 days after reporting date.

Sincerely,



Daryl P. Strandbergh  
Laboratory Director

DPS/kc

Enclosures

## Analytical Laboratory Report

Client Identification:	<b>AKT Peerless Environ. Svcs, Inc. - Lansing</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>27391</b>	Sample Number:	<b>27391-001</b>

### Client Sample Information

Project Identification:	<b>5700L</b>	Client Sample Description:	<b>B-1</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>1</b>
Sample Date:	<b>2/18/2008</b>	Chain of Custody Number:	<b>67227</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 14.8%.**  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
---------	--------	-------	--------------	-----------------	------------	----------------	--------------------	---------

#### UST VOCs by GC/MS, 5035 (EPA 5035/EPA 8260B)

Benzene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,2-Dichloroethane	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Ethylbenzene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Ethylene Dibromide	ND	µg/kg	20	1	VA08B21A	2/18/2008	2/21/2008	JLH
2-Methylnaphthalene	ND	µg/kg	330	1	VA08B21A	2/18/2008	2/21/2008	JLH
MTBE	ND	µg/kg	250	1	VA08B21A	2/18/2008	2/21/2008	JLH
Naphthalene	ND	µg/kg	330	1	VA08B21A	2/18/2008	2/21/2008	JLH
Toluene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,2,3-Trimethylbenzene	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,2,4-Trimethylbenzene	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,3,5-Trimethylbenzene	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
Xylenes	ND	µg/kg	150	1	VA08B21A	2/18/2008	2/21/2008	JLH

## Analytical Laboratory Report

Client Identification:	<b>AKT Peerless Environ. Svcs, Inc. - Lansing</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>27391</b>	Sample Number:	<b>27391-001A</b>

### Client Sample Information

Project Identification:	<b>5700L</b>	Client Sample Description:	<b>B-1</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>1</b>
Sample Date:	<b>2/18/2008</b>	Chain of Custody Number:	<b>67227</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 14.8%.**  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Dry Weight Determination (ASTM D 2974-87)</b>								
Percent Moisture (Water Content)	<b>15</b>	<b>%</b>	<b>0.1</b>	<b>1</b>	<b>NA</b>	<b>2/19/2008</b>	<b>2/20/2008</b>	<b>BMG</b>
<b>Lead by ICP/MS (EPA 3050B/EPA 6020)</b>								
Lead	<b>200000</b>	<b>µg/kg</b>	<b>1000</b>	<b>1</b>	<b>45031</b>	<b>2/20/2008</b>	<b>2/20/2008</b>	<b>KLB</b>
<b>Ethylene Glycol by GC/FID (EPA 8015B)</b>								
Ethylene Glycol	<b>ND</b>	<b>µg/kg</b>	<b>10000</b>	<b>1</b>	<b>45025</b>	<b>2/19/2008</b>	<b>2/19/2008</b>	<b>BDA</b>

## Analytical Laboratory Report

Client Identification:	<b>AKT Peerless Environ. Svcs, Inc. - Lansing</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>27391</b>	Sample Number:	<b>27391-002</b>

### Client Sample Information

Project Identification:	<b>5700L</b>	Client Sample Description:	<b>B-2</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>2</b>
Sample Date:	<b>2/18/2008</b>	Chain of Custody Number:	<b>67227</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 24.5%.**  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)</b>								
Acetone	ND	µg/kg	1000	1	VA08B21A	2/18/2008	2/21/2008	JLH
Acrylonitrile	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
Benzene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Bromobenzene	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
Bromochloromethane	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
Bromodichloromethane	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
Bromoform	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
Bromomethane	ND	µg/kg	200	1	VA08B21A	2/18/2008	2/21/2008	JLH
2-Butanone	ND	µg/kg	750	1	VA08B21A	2/18/2008	2/21/2008	JLH
n-Butylbenzene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
sec-Butylbenzene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
tert-Butylbenzene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Carbon Disulfide	ND	µg/kg	250	1	VA08B21A	2/18/2008	2/21/2008	JLH
Carbon Tetrachloride	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Chlorobenzene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Chloroethane	ND	µg/kg	250	1	VA08B21A	2/18/2008	2/21/2008	JLH
Chloroform	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Chloromethane	ND	µg/kg	250	1	VA08B21A	2/18/2008	2/21/2008	JLH
2-Chlorotoluene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH

## Analytical Laboratory Report

Client Identification:	<b>AKT Peerless Environ. Svcs, Inc. - Lansing</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>27391</b>	Sample Number:	<b>27391-002</b>

### Client Sample Information

Project Identification:	<b>5700L</b>	Client Sample Description:	<b>B-2</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>2</b>
Sample Date:	<b>2/18/2008</b>	Chain of Custody Number:	<b>67227</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 24.5%.**  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)</b>								
Dibromochloromethane	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,2-Dibromo-3-chloropropane	ND	µg/kg	10	1	VA08B21A	2/18/2008	2/21/2008	JLH
Dibromomethane	ND	µg/kg	250	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,2-Dichlorobenzene	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,3-Dichlorobenzene	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,4-Dichlorobenzene	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
Dichlorodifluoromethane	ND	µg/kg	250	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,1-Dichloroethane	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,2-Dichloroethane	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,1-Dichloroethene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
cis-1,2-Dichloroethene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
trans-1,2-Dichloroethene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,2-Dichloropropane	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
cis-1,3-Dichloropropene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
trans-1,3-Dichloropropene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Ethylbenzene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Ethylene Dibromide	ND	µg/kg	20	1	VA08B21A	2/18/2008	2/21/2008	JLH
2-Ethylhexene	ND	µg/kg	2500	1	VA08B21A	2/18/2008	2/21/2008	JLH
Methyl Iodide	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH

## Analytical Laboratory Report

Client Identification: **AKT Peerless Environ. Svcs, Inc. - Lansing**

Sample Matrix: **Soil/Solid**

Fibertec Project Number: **27391**

Sample Number: **27391-002**

### Client Sample Information

Project Identification: **5700L**

Client Sample Description: **B-2**

Project Number: **NA**

Client Sample Number: **2**

Sample Date: **2/18/2008**

Chain of Custody Number: **67227**

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 24.5%.**  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)</b>								
Isopropylbenzene	ND	µg/kg	250	1	VA08B21A	2/18/2008	2/21/2008	JLH
4-Methyl-2-pentanone	ND	µg/kg	2500	1	VA08B21A	2/18/2008	2/21/2008	JLH
Methylene Chloride	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
MTBE	ND	µg/kg	250	1	VA08B21A	2/18/2008	2/21/2008	JLH
Naphthalene	ND	µg/kg	330	1	VA08B21A	2/18/2008	2/21/2008	JLH
n-Propylbenzene	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
Styrene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,1,1,2-Tetrachloroethane	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,1,2,2-Tetrachloroethane	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Tetrachloroethene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Toluene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,2,4-Trichlorobenzene	ND	µg/kg	330	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,1,1-Trichloroethane	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,1,2-Trichloroethane	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Trichloroethene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Trichlorofluoromethane	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,2,3-Trichloropropane	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,2-Dimethylbenzene	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,4-Dimethylbenzene	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH



## Analytical Laboratory Report

Client Identification:	<b>AKT Peerless Environ. Svcs, Inc. - Lansing</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>27391</b>	Sample Number:	<b>27391-002</b>

### Client Sample Information

Project Identification:	<b>5700L</b>	Client Sample Description:	<b>B-2</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>2</b>
Sample Date:	<b>2/18/2008</b>	Chain of Custody Number:	<b>67227</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 24.5%.**  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)</b>								
1,3,5-Trimethylbenzene	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
Vinyl Chloride	ND	µg/kg	40	1	VA08B21A	2/18/2008	2/21/2008	JLH
Xylenes	ND	µg/kg	150	1	VA08B21A	2/18/2008	2/21/2008	JLH

## Analytical Laboratory Report

Client Identification:	<b>AKT Peerless Environ. Svcs, Inc. - Lansing</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>27391</b>	Sample Number:	<b>27391-002A</b>

### Client Sample Information

Project Identification:	<b>5700L</b>	Client Sample Description:	<b>B-2</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>2</b>
Sample Date:	<b>2/18/2008</b>	Chain of Custody Number:	<b>67227</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 24.5%.**  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Dry Weight Determination (ASTM D 2974-87)</b>								
Percent Moisture (Water Content)	<b>25</b>	%	0.1	1	NA	2/19/2008	2/20/2008	BMG
<b>Michigan 10 Elements by ICP/MS (EPA 3050B/EPA 6020)</b>								
Arsenic	<b>4400</b>	µg/kg	100	1	45031	2/20/2008	2/20/2008	KLB
Barium	<b>76000</b>	µg/kg	1000	1	45031	2/20/2008	2/20/2008	KLB
Cadmium	<b>590</b>	µg/kg	50	1	45031	2/20/2008	2/20/2008	KLB
Chromium	<b>10000</b>	µg/kg	500	1	45031	2/20/2008	2/21/2008	KLB
Copper	<b>13000</b>	µg/kg	1000	1	45031	2/20/2008	2/20/2008	KLB
Lead	<b>400000</b>	µg/kg	1000	1	45031	2/20/2008	2/21/2008	KLB
Selenium	<b>450</b>	µg/kg	200	1	45031	2/20/2008	2/20/2008	KLB
Silver	ND	µg/kg	100	1	45031	2/20/2008	2/20/2008	KLB
Zinc	<b>170000</b>	µg/kg	1000	1	45031	2/20/2008	2/20/2008	KLB
<b>Mercury by CVAAS (EPA 7471A)</b>								
Mercury	<b>320</b>	µg/kg	50	1	45041	2/21/2008	2/21/2008	MAP
<b>Polynuclear Aromatic Hydrocarbons (PNA's) (EPA 3550B/EPA 8270C)</b>								
Acenaphthene	ND	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN
Acenaphthylene	ND	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN
Anthracene	ND	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN
Benzo(a)anthracene	ND	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN
B. pyrene	ND	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN
Benzo(b)fluoranthene	ND	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN

## Analytical Laboratory Report

Client Identification:	<b>AKT Peerless Environ. Svcs, Inc. - Lansing</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>27391</b>	Sample Number:	<b>27391-002A</b>

### Client Sample Information

Project Identification:	<b>5700L</b>	Client Sample Description:	<b>B-2</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>2</b>
Sample Date:	<b>2/18/2008</b>	Chain of Custody Number:	<b>67227</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 24.5%.**  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3550B/EPA 8270C)</b>								
Benzo(ghi)perylene	ND	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN
Benzo(k)fluoranthene	ND	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN
Chrysene	ND	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN
Dibenzo(a,h)anthracene	ND	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN
Fluoranthene	ND	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN
Fluorene	ND	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN
Indeno(1,2,3-cd)pyrene	ND	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN
2-Methylnaphthalene	ND	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN
Phenanthrene	ND	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN
Pyrene	ND	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN

## Analytical Laboratory Report

Client Identification:	<b>AKT Peerless Environ. Svcs, Inc. - Lansing</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>27391</b>	Sample Number:	<b>27391-003</b>

### Client Sample Information

Project Identification:	<b>5700L</b>	Client Sample Description:	<b>B-3</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>3</b>
Sample Date:	<b>2/18/2008</b>	Chain of Custody Number:	<b>67227</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 14.4%.**  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
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#### UST VOCs by GC/MS, 5035 (EPA 5035/EPA 8260B)

Benzene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,2-Dichloroethane	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Ethylbenzene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Ethylene Dibromide	ND	µg/kg	20	1	VA08B21A	2/18/2008	2/21/2008	JLH
2-Methylnaphthalene	<b>74000</b>	µg/kg	6600	20	V308B21A	2/18/2008	2/21/2008	JLH
MTBE	ND	µg/kg	250	1	VA08B21A	2/18/2008	2/21/2008	JLH
Naphthalene	<b>4900</b>	µg/kg	330	1	VA08B21A	2/18/2008	2/21/2008	JLH
Toluene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,2,3-Trimethylbenzene	<b>120</b>	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,2,4-Trimethylbenzene	<b>360</b>	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,3,5-Trimethylbenzene	<b>270</b>	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
Xylenes	ND	µg/kg	150	1	VA08B21A	2/18/2008	2/21/2008	JLH

## Analytical Laboratory Report

Client Identification:	<b>AKT Peerless Environ. Svcs, Inc. - Lansing</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>27391</b>	Sample Number:	<b>27391-003A</b>

### Client Sample Information

Project Identification:	<b>5700L</b>	Client Sample Description:	<b>B-3</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>3</b>
Sample Date:	<b>2/18/2008</b>	Chain of Custody Number:	<b>67227</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 14.4%.**  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Dry Weight Determination (ASTM D 2974-87)</b>								
Percent Moisture (Water Content)	<b>14</b>	<b>%</b>	<b>0.1</b>	<b>1</b>	<b>NA</b>	<b>2/19/2008</b>	<b>2/20/2008</b>	<b>BMG</b>
<b>Lead by ICP/MS (EPA 3050B/EPA 6020)</b>								
Lead	<b>7000</b>	<b>µg/kg</b>	<b>1000</b>	<b>1</b>	<b>45031</b>	<b>2/20/2008</b>	<b>2/20/2008</b>	<b>KLB</b>
<b>Ethylene Glycol by GC/FID (EPA 8015B)</b>								
Ethylene Glycol	<b>ND</b>	<b>µg/kg</b>	<b>10000</b>	<b>1</b>	<b>45025</b>	<b>2/19/2008</b>	<b>2/19/2008</b>	<b>BDA</b>

## Analytical Laboratory Report

Client Identification:	<b>AKT Peerless Environ. Svcs, Inc. - Lansing</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>27391</b>	Sample Number:	<b>27391-004</b>

### Client Sample Information

Project Identification:	<b>5700L</b>	Client Sample Description:	<b>B-4</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>4</b>
Sample Date:	<b>2/18/2008</b>	Chain of Custody Number:	<b>67227</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 11.7%.**  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)</b>								
Acetone	ND	µg/kg	1000	1	VA08B21A	2/18/2008	2/21/2008	JLH
Acrylonitrile	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
Benzene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Bromobenzene	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
Bromochloromethane	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
Bromodichloromethane	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
Bromoform	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
Bromomethane	ND	µg/kg	200	1	VA08B21A	2/18/2008	2/21/2008	JLH
2-Butanone	ND	µg/kg	750	1	VA08B21A	2/18/2008	2/21/2008	JLH
n-Butylbenzene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
sec-Butylbenzene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
tert-Butylbenzene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Carbon Disulfide	ND	µg/kg	250	1	VA08B21A	2/18/2008	2/21/2008	JLH
Carbon Tetrachloride	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Chlorobenzene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Chloroethane	ND	µg/kg	250	1	VA08B21A	2/18/2008	2/21/2008	JLH
Chloroform	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Chloromethane	ND	µg/kg	250	1	VA08B21A	2/18/2008	2/21/2008	JLH
o-Crotoluene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH

## Analytical Laboratory Report

Client Identification:	<b>AKT Peerless Environ. Svcs, Inc. - Lansing</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>27391</b>	Sample Number:	<b>27391-004</b>

### Client Sample Information

Project Identification:	<b>5700L</b>	Client Sample Description:	<b>B-4</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>4</b>
Sample Date:	<b>2/18/2008</b>	Chain of Custody Number:	<b>67227</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 11.7%.**  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)</b>								
Dibromochloromethane	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,2-Dibromo-3-chloropropane	ND	µg/kg	10	1	VA08B21A	2/18/2008	2/21/2008	JLH
Dibromomethane	ND	µg/kg	250	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,2-Dichlorobenzene	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,3-Dichlorobenzene	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,4-Dichlorobenzene	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
Dichlorodifluoromethane	ND	µg/kg	250	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,1-Dichloroethane	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,2-Dichloroethane	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,1-Dichloroethene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
cis-1,2-Dichloroethene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
trans-1,2-Dichloroethene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,2-Dichloropropane	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
cis-1,3-Dichloropropene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
trans-1,3-Dichloropropene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Ethylbenzene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Ethylene Dibromide	ND	µg/kg	20	1	VA08B21A	2/18/2008	2/21/2008	JLH
2-Iodopropane	ND	µg/kg	2500	1	VA08B21A	2/18/2008	2/21/2008	JLH
Methyl Iodide	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH

# Analytical Laboratory Report

Client Identification: **AKT Peerless Environ. Svcs, Inc. - Lansing**

Sample Matrix: **Soil/Solid**

Fibertec Project Number: **27391**

Sample Number: **27391-004**

## Client Sample Information

Project Identification: **5700L**

Client Sample Description: **B-4**

Project Number: **NA**

Client Sample Number: **4**

Sample Date: **2/18/2008**

Chain of Custody Number: **67227**

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 11.7%.**  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)</b>								
Isopropylbenzene	ND	µg/kg	250	1	VA08B21A	2/18/2008	2/21/2008	JLH
4-Methyl-2-pentanone	ND	µg/kg	2500	1	VA08B21A	2/18/2008	2/21/2008	JLH
Methylene Chloride	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
MTBE	ND	µg/kg	250	1	VA08B21A	2/18/2008	2/21/2008	JLH
Naphthalene	ND	µg/kg	330	1	VA08B21A	2/18/2008	2/21/2008	JLH
n-Propylbenzene	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
Styrene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,1,1,2-Tetrachloroethane	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,1,2,2-Tetrachloroethane	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Tetrachloroethene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Toluene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,2,4-Trichlorobenzene	ND	µg/kg	330	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,1,1-Trichloroethane	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,1,2-Trichloroethane	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Trichloroethene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Trichlorofluoromethane	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,2,3-Trichloropropane	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,2,4-Trimethylbenzene	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,2,3-Trimethylbenzene	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH



## Analytical Laboratory Report

Client Identification:	<b>AKT Peerless Environ. Svcs, Inc. - Lansing</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>27391</b>	Sample Number:	<b>27391-004</b>

### Client Sample Information

Project Identification:	<b>5700L</b>	Client Sample Description:	<b>B-4</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>4</b>
Sample Date:	<b>2/18/2008</b>	Chain of Custody Number:	<b>67227</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 11.7%.**  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)</b>								
1,3,5-Trimethylbenzene	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
Vinyl Chloride	ND	µg/kg	40	1	VA08B21A	2/18/2008	2/21/2008	JLH
Xylenes	ND	µg/kg	150	1	VA08B21A	2/18/2008	2/21/2008	JLH

## Analytical Laboratory Report

Client Identification:	<b>AKT Peerless Environ. Svcs, Inc. - Lansing</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>27391</b>	Sample Number:	<b>27391-004A</b>

### Client Sample Information

Project Identification:	<b>5700L</b>	Client Sample Description:	<b>B-4</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>4</b>
Sample Date:	<b>2/18/2008</b>	Chain of Custody Number:	<b>67227</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 11.7%.**  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
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#### Dry Weight Determination (ASTM D 2974-87)

Percent Moisture (Water Content)	<b>12</b>	<b>%</b>	<b>0.1</b>	<b>1</b>	<b>NA</b>	<b>2/19/2008</b>	<b>2/20/2008</b>	<b>BMG</b>
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#### Michigan 10 Elements by ICP/MS (EPA 3050B/EPA 6020)

Arsenic	<b>6200</b>	$\mu\text{g/kg}$	<b>100</b>	<b>1</b>	<b>45031</b>	<b>2/20/2008</b>	<b>2/20/2008</b>	<b>KLB</b>
Barium	<b>100000</b>	$\mu\text{g/kg}$	<b>1000</b>	<b>1</b>	<b>45031</b>	<b>2/20/2008</b>	<b>2/20/2008</b>	<b>KLB</b>
Cadmium	<b>310</b>	$\mu\text{g/kg}$	<b>50</b>	<b>1</b>	<b>45031</b>	<b>2/20/2008</b>	<b>2/20/2008</b>	<b>KLB</b>
Chromium	<b>14000</b>	$\mu\text{g/kg}$	<b>500</b>	<b>1</b>	<b>45031</b>	<b>2/20/2008</b>	<b>2/21/2008</b>	<b>KLB</b>
Copper	<b>19000</b>	$\mu\text{g/kg}$	<b>1000</b>	<b>1</b>	<b>45031</b>	<b>2/20/2008</b>	<b>2/20/2008</b>	<b>KLB</b>
Lead	<b>250000</b>	$\mu\text{g/kg}$	<b>1000</b>	<b>1</b>	<b>45031</b>	<b>2/20/2008</b>	<b>2/21/2008</b>	<b>KLB</b>
Selenium	<b>ND</b>	$\mu\text{g/kg}$	<b>200</b>	<b>1</b>	<b>45031</b>	<b>2/20/2008</b>	<b>2/20/2008</b>	<b>KLB</b>
Silver	<b>120</b>	$\mu\text{g/kg}$	<b>100</b>	<b>1</b>	<b>45031</b>	<b>2/20/2008</b>	<b>2/20/2008</b>	<b>KLB</b>
Zinc	<b>130000</b>	$\mu\text{g/kg}$	<b>1000</b>	<b>1</b>	<b>45031</b>	<b>2/20/2008</b>	<b>2/20/2008</b>	<b>KLB</b>

#### Mercury by CVAAS (EPA 7471A)

Mercury	<b>150</b>	$\mu\text{g/kg}$	<b>50</b>	<b>1</b>	<b>45041</b>	<b>2/21/2008</b>	<b>2/21/2008</b>	<b>MAP</b>
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#### Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3550B/EPA 8270C)

Acenaphthene	<b>ND</b>	$\mu\text{g/kg}$	<b>330</b>	<b>1</b>	<b>44975</b>	<b>2/20/2008</b>	<b>2/20/2008</b>	<b>LAN</b>
Acenaphthylene	<b>ND</b>	$\mu\text{g/kg}$	<b>330</b>	<b>1</b>	<b>44975</b>	<b>2/20/2008</b>	<b>2/20/2008</b>	<b>LAN</b>
Anthracene	<b>ND</b>	$\mu\text{g/kg}$	<b>330</b>	<b>1</b>	<b>44975</b>	<b>2/20/2008</b>	<b>2/20/2008</b>	<b>LAN</b>
Benzo(a)anthracene	<b>690</b>	$\mu\text{g/kg}$	<b>330</b>	<b>1</b>	<b>44975</b>	<b>2/20/2008</b>	<b>2/20/2008</b>	<b>LAN</b>
Benzo(b)fluoranthene	<b>600</b>	$\mu\text{g/kg}$	<b>330</b>	<b>1</b>	<b>44975</b>	<b>2/20/2008</b>	<b>2/20/2008</b>	<b>LAN</b>
Benzo(k)fluoranthene	<b>760</b>	$\mu\text{g/kg}$	<b>330</b>	<b>1</b>	<b>44975</b>	<b>2/20/2008</b>	<b>2/20/2008</b>	<b>LAN</b>

## Analytical Laboratory Report

Client Identification:	<b>AKT Peerless Environ. Svcs, Inc. - Lansing</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>27391</b>	Sample Number:	<b>27391-004A</b>

### Client Sample Information

Project Identification:	<b>5700L</b>	Client Sample Description:	<b>B-4</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>4</b>
Sample Date:	<b>2/18/2008</b>	Chain of Custody Number:	<b>67227</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 11.7%.**  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3550B/EPA 8270C)</b>								
Benzo(ghi)perylene	<b>330</b>	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN
Benzo(k)fluoranthene	ND	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN
Chrysene	<b>540</b>	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN
Dibenzo(a,h)anthracene	ND	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN
Fluoranthene	<b>1100</b>	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN
Fluorene	ND	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN
Indeno(1,2,3-cd)pyrene	<b>390</b>	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN
2-Methylnaphthalene	ND	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN
Phenanthrene	<b>390</b>	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN
Pyrene	<b>910</b>	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN

## Analytical Laboratory Report

Client Identification: **AKT Peerless Environ. Svcs, Inc. - Lansing**

Sample Matrix: **Soil/Solid**

Fibertec Project Number: **27391**

Sample Number: **27391-005**

### Client Sample Information

Project Identification: **5700L**

Client Sample Description: **B-5**

Project Number: **NA**

Client Sample Number: **5**

Sample Date: **2/18/2008**

Chain of Custody Number: **67227**

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 14.5%.**  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)</b>								
Acetone	ND	µg/kg	1000	1	VA08B21A	2/18/2008	2/21/2008	JLH
Acrylonitrile	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
Benzene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Bromobenzene	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
Bromochloromethane	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
Bromodichloromethane	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
Bromoform	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
Bromomethane	ND	µg/kg	200	1	VA08B21A	2/18/2008	2/21/2008	JLH
2-Butanone	ND	µg/kg	750	1	VA08B21A	2/18/2008	2/21/2008	JLH
n-Butylbenzene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
sec-Butylbenzene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
tert-Butylbenzene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Carbon Disulfide	ND	µg/kg	250	1	VA08B21A	2/18/2008	2/21/2008	JLH
Carbon Tetrachloride	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Chlorobenzene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Chloroethane	ND	µg/kg	250	1	VA08B21A	2/18/2008	2/21/2008	JLH
Chloroform	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Chloromethane	ND	µg/kg	250	1	VA08B21A	2/18/2008	2/21/2008	JLH
o-Cresol	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH

## Analytical Laboratory Report

Client Identification:	<b>AKT Peerless Environ. Svcs, Inc. - Lansing</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>27391</b>	Sample Number:	<b>27391-005</b>

### Client Sample Information

Project Identification:	<b>5700L</b>	Client Sample Description:	<b>B-5</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>5</b>
Sample Date:	<b>2/18/2008</b>	Chain of Custody Number:	<b>67227</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 14.5%.**  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)</b>								
Dibromochloromethane	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,2-Dibromo-3-chloropropane	ND	µg/kg	10	1	VA08B21A	2/18/2008	2/21/2008	JLH
Dibromomethane	ND	µg/kg	250	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,2-Dichlorobenzene	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,3-Dichlorobenzene	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,4-Dichlorobenzene	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
Dichlorodifluoromethane	ND	µg/kg	250	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,1-Dichloroethane	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,2-Dichloroethane	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,1-Dichloroethene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
cis-1,2-Dichloroethene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
trans-1,2-Dichloroethene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,2-Dichloropropane	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
cis-1,3-Dichloropropene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
trans-1,3-Dichloropropene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Ethylbenzene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Ethylene Dibromide	ND	µg/kg	20	1	VA08B21A	2/18/2008	2/21/2008	JLH
2,2,4,4-tetrahaloethane	ND	µg/kg	2500	1	VA08B21A	2/18/2008	2/21/2008	JLH
Methylene Iodide	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH

# Analytical Laboratory Report

Client Identification: **AKT Peerless Environ. Svcs, Inc. - Lansing**

Sample Matrix: **Soil/Solid**

Fibertec Project Number: **27391**

Sample Number: **27391-005**

## Client Sample Information

Project Identification: **5700L**

Client Sample Description: **B-5**

Project Number: **NA**

Client Sample Number: **5**

Sample Date: **2/18/2008**

Chain of Custody Number: **67227**

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 14.5%.**  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)</b>								
Isopropylbenzene	ND	µg/kg	250	1	VA08B21A	2/18/2008	2/21/2008	JLH
4-Methyl-2-pentanone	ND	µg/kg	2500	1	VA08B21A	2/18/2008	2/21/2008	JLH
Methylene Chloride	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
MTBE	ND	µg/kg	250	1	VA08B21A	2/18/2008	2/21/2008	JLH
Naphthalene	ND	µg/kg	330	1	VA08B21A	2/18/2008	2/21/2008	JLH
n-Propylbenzene	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
Styrene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,1,1,2-Tetrachloroethane	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,1,2,2-Tetrachloroethane	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Tetrachloroethene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Toluene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,2,4-Trichlorobenzene	ND	µg/kg	330	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,1,1-Trichloroethane	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,1,2-Trichloroethane	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Trichloroethene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Trichlorofluoromethane	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,2,3-Trichloropropane	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,2,4-Trimethylbenzene	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,2,6-Trimethylbenzene	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH

## Analytical Laboratory Report

Client Identification: **AKT Peerless Environ. Svcs, Inc. - Lansing**

Sample Matrix: **Soil/Solid**

Fibertec Project Number: **27391**

Sample Number: **27391-005**

### Client Sample Information

Project Identification: **5700L**

Client Sample Description: **B-5**

Project Number: **NA**

Client Sample Number: **5**

Sample Date: **2/18/2008**

Chain of Custody Number: **67227**

Comments:

**All Results Reported On Dry Weight Basis. Percent Moisture = 14.5%.**

Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**

**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**

**E = Estimated value; J = Analyte positively identified - estimated value**

**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**

**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)</b>								
1,3,5-Trimethylbenzene	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
Vinyl Chloride	ND	µg/kg	40	1	VA08B21A	2/18/2008	2/21/2008	JLH
Xylenes	ND	µg/kg	150	1	VA08B21A	2/18/2008	2/21/2008	JLH

# Analytical Laboratory Report

Client Identification:	<b>AKT Peerless Environ. Svcs, Inc. - Lansing</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>27391</b>	Sample Number:	<b>27391-005A</b>

## Client Sample Information

Project Identification:	<b>5700L</b>	Client Sample Description:	<b>B-5</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>5</b>
Sample Date:	<b>2/18/2008</b>	Chain of Custody Number:	<b>67227</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 14.5%.**  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
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**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
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### Dry Weight Determination (ASTM D 2974-87)

Percent Moisture (Water Content)	<b>15</b>	<b>%</b>	<b>0.1</b>	<b>1</b>	<b>NA</b>	<b>2/19/2008</b>	<b>2/20/2008</b>	<b>BMG</b>
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### Michigan 10 Elements by ICP/MS (EPA 3050B/EPA 6020)

Arsenic	<b>6000</b>	$\mu\text{g/kg}$	<b>100</b>	<b>1</b>	<b>45031</b>	<b>2/20/2008</b>	<b>2/20/2008</b>	<b>KLB</b>
Barium	<b>100000</b>	$\mu\text{g/kg}$	<b>1000</b>	<b>1</b>	<b>45031</b>	<b>2/20/2008</b>	<b>2/20/2008</b>	<b>KLB</b>
Cadmium	<b>490</b>	$\mu\text{g/kg}$	<b>50</b>	<b>1</b>	<b>45031</b>	<b>2/20/2008</b>	<b>2/20/2008</b>	<b>KLB</b>
Chromium	<b>13000</b>	$\mu\text{g/kg}$	<b>500</b>	<b>1</b>	<b>45031</b>	<b>2/20/2008</b>	<b>2/21/2008</b>	<b>KLB</b>
Copper	<b>20000</b>	$\mu\text{g/kg}$	<b>1000</b>	<b>1</b>	<b>45031</b>	<b>2/20/2008</b>	<b>2/20/2008</b>	<b>KLB</b>
Lead	<b>290000</b>	$\mu\text{g/kg}$	<b>1000</b>	<b>1</b>	<b>45031</b>	<b>2/20/2008</b>	<b>2/21/2008</b>	<b>KLB</b>
Selenium	<b>ND</b>	$\mu\text{g/kg}$	<b>200</b>	<b>1</b>	<b>45031</b>	<b>2/20/2008</b>	<b>2/20/2008</b>	<b>KLB</b>
Silver	<b>140</b>	$\mu\text{g/kg}$	<b>100</b>	<b>1</b>	<b>45031</b>	<b>2/20/2008</b>	<b>2/20/2008</b>	<b>KLB</b>
Zinc	<b>150000</b>	$\mu\text{g/kg}$	<b>1000</b>	<b>1</b>	<b>45031</b>	<b>2/20/2008</b>	<b>2/20/2008</b>	<b>KLB</b>

### Mercury by CVAAS (EPA 7471A)

Mercury	<b>110</b>	$\mu\text{g/kg}$	<b>50</b>	<b>1</b>	<b>45041</b>	<b>2/21/2008</b>	<b>2/21/2008</b>	<b>MAP</b>
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### Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3550B/EPA 8270C)

Acenaphthene	<b>ND</b>	$\mu\text{g/kg}$	<b>330</b>	<b>1</b>	<b>44975</b>	<b>2/20/2008</b>	<b>2/20/2008</b>	<b>LAN</b>
Acenaphthylene	<b>ND</b>	$\mu\text{g/kg}$	<b>330</b>	<b>1</b>	<b>44975</b>	<b>2/20/2008</b>	<b>2/20/2008</b>	<b>LAN</b>
Anthracene	<b>ND</b>	$\mu\text{g/kg}$	<b>330</b>	<b>1</b>	<b>44975</b>	<b>2/20/2008</b>	<b>2/20/2008</b>	<b>LAN</b>
Benzo(a)anthracene	<b>ND</b>	$\mu\text{g/kg}$	<b>330</b>	<b>1</b>	<b>44975</b>	<b>2/20/2008</b>	<b>2/20/2008</b>	<b>LAN</b>
Benzo(b)fluoranthene	<b>ND</b>	$\mu\text{g/kg}$	<b>330</b>	<b>1</b>	<b>44975</b>	<b>2/20/2008</b>	<b>2/20/2008</b>	<b>LAN</b>



# Analytical Laboratory Report

Client Identification: **AKT Peerless Environ. Svcs, Inc. - Lansing**

Sample Matrix: **Soil/Solid**

Fibertec Project Number: **27391**

Sample Number: **27391-005A**

## Client Sample Information

Project Identification: **5700L**

Client Sample Description: **B-5**

Project Number: **NA**

Client Sample Number: **5**

Sample Date: **2/18/2008**

Chain of Custody Number: **67227**

Comments:

**All Results Reported On Dry Weight Basis. Percent Moisture = 14.5%.**

Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**

**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**

**E = Estimated value; J = Analyte positively identified - estimated value**

**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**

**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3550B/EPA 8270C)</b>								
Benzo(ghi)perylene	ND	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN
Benzo(k)fluoranthene	ND	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN
Chrysene	ND	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN
Dibenzo(a,h)anthracene	ND	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN
Fluoranthene	ND	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN
Fluorene	ND	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN
Indeno(1,2,3-cd)pyrene	ND	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN
2-Methylnaphthalene	ND	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN
Phenanthrene	ND	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN
Pyrene	ND	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN

# Analytical Laboratory Report

Client Identification: **AKT Peerless Environ. Svcs, Inc. - Lansing**

Sample Matrix: **Soil/Solid**

Fibertec Project Number: **27391**

Sample Number: **27391-006**

## Client Sample Information

Project Identification: **5700L**

Client Sample Description: **B-6**

Project Number: **NA**

Client Sample Number: **6**

Sample Date: **2/18/2008**

Chain of Custody Number: **67227**

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 15.7%.**  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)</b>								
Acetone	ND	µg/kg	1000	1	VA08B21A	2/18/2008	2/21/2008	JLH
Acrylonitrile	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
Benzene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Bromobenzene	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
Bromochloromethane	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
Bromodichloromethane	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
Bromoform	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
Bromomethane	ND	µg/kg	200	1	VA08B21A	2/18/2008	2/21/2008	JLH
2-Butanone	ND	µg/kg	750	1	VA08B21A	2/18/2008	2/21/2008	JLH
n-Butylbenzene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
sec-Butylbenzene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
tert-Butylbenzene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Carbon Disulfide	ND	µg/kg	250	1	VA08B21A	2/18/2008	2/21/2008	JLH
Carbon Tetrachloride	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Chlorobenzene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Chloroethane	ND	µg/kg	250	1	VA08B21A	2/18/2008	2/21/2008	JLH
Chloroform	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Chloromethane	ND	µg/kg	250	1	VA08B21A	2/18/2008	2/21/2008	JLH
2-Chlorotoluene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH

## Analytical Laboratory Report

Client Identification:	<b>AKT Peerless Environ. Svcs, Inc. - Lansing</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>27391</b>	Sample Number:	<b>27391-006</b>

### Client Sample Information

Project Identification:	<b>5700L</b>	Client Sample Description:	<b>B-6</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>6</b>
Sample Date:	<b>2/18/2008</b>	Chain of Custody Number:	<b>67227</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 15.7%.**  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
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**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)</b>								
Dibromochloromethane	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,2-Dibromo-3-chloropropane	ND	µg/kg	10	1	VA08B21A	2/18/2008	2/21/2008	JLH
Dibromomethane	ND	µg/kg	250	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,2-Dichlorobenzene	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,3-Dichlorobenzene	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,4-Dichlorobenzene	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
Dichlorodifluoromethane	ND	µg/kg	250	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,1-Dichloroethane	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,2-Dichloroethane	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,1-Dichloroethene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
cis-1,2-Dichloroethene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
trans-1,2-Dichloroethene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,2-Dichloropropane	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
cis-1,3-Dichloropropene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
trans-1,3-Dichloropropene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Ethylbenzene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Ethylene Dibromide	ND	µg/kg	20	1	VA08B21A	2/18/2008	2/21/2008	JLH
2-Hexanone	ND	µg/kg	2500	1	VA08B21A	2/18/2008	2/21/2008	JLH
Methyl Iodide	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH

## Analytical Laboratory Report

Client Identification:	<b>AKT Peerless Environ. Svcs, Inc. - Lansing</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>27391</b>	Sample Number:	<b>27391-006</b>

### Client Sample Information

Project Identification:	<b>5700L</b>	Client Sample Description:	<b>B-6</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>6</b>
Sample Date:	<b>2/18/2008</b>	Chain of Custody Number:	<b>67227</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 15.7%.**  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)</b>								
Isopropylbenzene	ND	µg/kg	250	1	VA08B21A	2/18/2008	2/21/2008	JLH
4-Methyl-2-pentanone	ND	µg/kg	2500	1	VA08B21A	2/18/2008	2/21/2008	JLH
Methylene Chloride	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
MTBE	ND	µg/kg	250	1	VA08B21A	2/18/2008	2/21/2008	JLH
Naphthalene	ND	µg/kg	330	1	VA08B21A	2/18/2008	2/21/2008	JLH
n-Propylbenzene	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
Styrene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,1,1,2-Tetrachloroethane	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,1,2,2-Tetrachloroethane	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Tetrachloroethene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Toluene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,2,4-Trichlorobenzene	ND	µg/kg	330	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,1,1-Trichloroethane	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,1,2-Trichloroethane	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Trichloroethene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Trichlorofluoromethane	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,2,3-Trichloropropane	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,2,4-Trimethylbenzene	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,2,3-Trimethylbenzene	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH

## Analytical Laboratory Report

Client Identification: **AKT Peerless Environ. Svcs, Inc. - Lansing**

Sample Matrix: **Soil/Solid**

Fibertec Project Number: **27391**

Sample Number: **27391-006**

### Client Sample Information

Project Identification: **5700L**

Client Sample Description: **B-6**

Project Number: **NA**

Client Sample Number: **6**

Sample Date: **2/18/2008**

Chain of Custody Number: **67227**

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 15.7%.**  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)</b>								
1,3,5-Trimethylbenzene	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
Vinyl Chloride	ND	µg/kg	40	1	VA08B21A	2/18/2008	2/21/2008	JLH
Xylenes	ND	µg/kg	150	1	VA08B21A	2/18/2008	2/21/2008	JLH

# Analytical Laboratory Report

Client Identification: **AKT Peerless Environ. Svcs, Inc. - Lansing**

Sample Matrix: **Soil/Solid**

Fibertec Project Number: **27391**

Sample Number: **27391-006A**

## Client Sample Information

Project Identification: **5700L**

Client Sample Description: **B-6**

Project Number: **NA**

Client Sample Number: **6**

Sample Date: **2/18/2008**

Chain of Custody Number: **67227**

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 15.7%.**  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Dry Weight Determination (ASTM D 2974-87)</b>								
Percent Moisture (Water Content)	<b>16</b>	%	0.1	1	NA	2/19/2008	2/20/2008	BMG
<b>Michigan 10 Elements by ICP/MS (EPA 3050B/EPA 6020)</b>								
Arsenic	<b>3600</b>	µg/kg	100	1	45031	2/20/2008	2/20/2008	KLB
Barium	<b>87000</b>	µg/kg	1000	1	45031	2/20/2008	2/20/2008	KLB
Cadmium	<b>480</b>	µg/kg	50	1	45031	2/20/2008	2/20/2008	KLB
Chromium	<b>14000</b>	µg/kg	500	1	45031	2/20/2008	2/21/2008	KLB
Copper	<b>12000</b>	µg/kg	1000	1	45031	2/20/2008	2/20/2008	KLB
Lead	<b>89000</b>	µg/kg	1000	1	45031	2/20/2008	2/20/2008	KLB
Selenium	ND	µg/kg	200	1	45031	2/20/2008	2/20/2008	KLB
Silver	ND	µg/kg	100	1	45031	2/20/2008	2/20/2008	KLB
Zinc	<b>160000</b>	µg/kg	1000	1	45031	2/20/2008	2/20/2008	KLB
<b>Mercury by CVAAS (EPA 7471A)</b>								
Mercury	<b>260</b>	µg/kg	50	1	45041	2/21/2008	2/21/2008	MAP
<b>Polynuclear Aromatic Hydrocarbons (PNA's) (EPA 3550B/EPA 8270C)</b>								
Acenaphthene	ND	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN
Acenaphthylene	ND	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN
Anthracene	ND	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN
Benzo(a)anthracene	ND	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN
Benzo(b)fluoranthene	ND	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN
Benzo(k)fluoranthene	ND	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN

## Analytical Laboratory Report

Client Identification:	<b>AKT Peerless Environ. Svcs, Inc. - Lansing</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>27391</b>	Sample Number:	<b>27391-006A</b>

### Client Sample Information

Project Identification:	<b>5700L</b>	Client Sample Description:	<b>B-6</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>6</b>
Sample Date:	<b>2/18/2008</b>	Chain of Custody Number:	<b>67227</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 15.7%.**  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Polyuclear Aromatic Hydrocarbons (PNAs) (EPA 3550B/EPA 8270C)</b>								
Benzo(ghi)perylene	ND	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN
Benzo(k)fluoranthene	ND	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN
Chrysene	ND	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN
Dibenzo(a,h)anthracene	ND	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN
Fluoranthene	ND	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN
Fluorene	ND	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN
Indeno(1,2,3-cd)pyrene	ND	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN
2-Methylnaphthalene	ND	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN
Phenanthrene	ND	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN
Pyrene	ND	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN

## Analytical Laboratory Report

Client Identification:	<b>AKT Peerless Environ. Svcs, Inc. - Lansing</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>27391</b>	Sample Number:	<b>27391-007</b>

### Client Sample Information

Project Identification:	<b>5700L</b>	Client Sample Description:	<b>B-7</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>7</b>
Sample Date:	<b>2/18/2008</b>	Chain of Custody Number:	<b>67227</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 16.4%.**  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)</b>								
Acetone	ND	µg/kg	1000	1	VA08B21A	2/18/2008	2/21/2008	JLH
Acrylonitrile	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
Benzene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Bromobenzene	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
Bromochloromethane	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
Bromodichloromethane	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
Bromoform	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
Bromomethane	ND	µg/kg	200	1	VA08B21A	2/18/2008	2/21/2008	JLH
2-Butanone	ND	µg/kg	750	1	VA08B21A	2/18/2008	2/21/2008	JLH
n-Butylbenzene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
sec-Butylbenzene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
tert-Butylbenzene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Carbon Disulfide	ND	µg/kg	250	1	VA08B21A	2/18/2008	2/21/2008	JLH
Carbon Tetrachloride	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Chlorobenzene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Chloroethane	ND	µg/kg	250	1	VA08B21A	2/18/2008	2/21/2008	JLH
Chloroform	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Chloromethane	ND	µg/kg	250	1	VA08B21A	2/18/2008	2/21/2008	JLH
2-Chlorotoluene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH



## Analytical Laboratory Report

Client Identification:	<b>AKT Peerless Environ. Svcs, Inc. - Lansing</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>27391</b>	Sample Number:	<b>27391-007</b>

### Client Sample Information

Project Identification:	<b>5700L</b>	Client Sample Description:	<b>B-7</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>7</b>
Sample Date:	<b>2/18/2008</b>	Chain of Custody Number:	<b>67227</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 16.4%.**  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)</b>								
Dibromochloromethane	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,2-Dibromo-3-chloropropane	ND	µg/kg	10	1	VA08B21A	2/18/2008	2/21/2008	JLH
Dibromomethane	ND	µg/kg	250	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,2-Dichlorobenzene	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,3-Dichlorobenzene	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,4-Dichlorobenzene	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
Dichlorodifluoromethane	ND	µg/kg	250	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,1-Dichloroethane	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,2-Dichloroethane	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,1-Dichloroethene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
cis-1,2-Dichloroethene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
trans-1,2-Dichloroethene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,2-Dichloropropane	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
cis-1,3-Dichloropropene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
trans-1,3-Dichloropropene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Ethylbenzene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Ethylene Dibromide	ND	µg/kg	20	1	VA08B21A	2/18/2008	2/21/2008	JLH
2-Methoxyethanol	ND	µg/kg	2500	1	VA08B21A	2/18/2008	2/21/2008	JLH
Methyl Iodide	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH

## Analytical Laboratory Report

Client Identification:	<b>AKT Peerless Environ. Svcs, Inc. - Lansing</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>27391</b>	Sample Number:	<b>27391-007</b>

### Client Sample Information

Project Identification:	<b>5700L</b>	Client Sample Description:	<b>B-7</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>7</b>
Sample Date:	<b>2/18/2008</b>	Chain of Custody Number:	<b>67227</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 16.4%.**  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)</b>								
Isopropylbenzene	ND	µg/kg	250	1	VA08B21A	2/18/2008	2/21/2008	JLH
4-Methyl-2-pentanone	ND	µg/kg	2500	1	VA08B21A	2/18/2008	2/21/2008	JLH
Methylene Chloride	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
MTBE	ND	µg/kg	250	1	VA08B21A	2/18/2008	2/21/2008	JLH
Naphthalene	ND	µg/kg	330	1	VA08B21A	2/18/2008	2/21/2008	JLH
n-Propylbenzene	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
Styrene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,1,1,2-Tetrachloroethane	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,1,2,2-Tetrachloroethane	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Tetrachloroethene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Toluene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,2,4-Trichlorobenzene	ND	µg/kg	330	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,1,1-Trichloroethane	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,1,2-Trichloroethane	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Trichloroethene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Trichlorofluoromethane	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,2,3-Trichloropropane	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,2-Dimethylbenzene	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,2,4-Dimethylbenzene	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH

## Analytical Laboratory Report

Client Identification:	<b>AKT Peerless Environ. Svcs, Inc. - Lansing</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>27391</b>	Sample Number:	<b>27391-007</b>

### Client Sample Information

Project Identification:	<b>5700L</b>	Client Sample Description:	<b>B-7</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>7</b>
Sample Date:	<b>2/18/2008</b>	Chain of Custody Number:	<b>67227</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 16.4%.**  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)</b>								
1,3,5-Trimethylbenzene	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
Vinyl Chloride	ND	µg/kg	40	1	VA08B21A	2/18/2008	2/21/2008	JLH
Xylenes	ND	µg/kg	150	1	VA08B21A	2/18/2008	2/21/2008	JLH

## Analytical Laboratory Report

Client Identification:	<b>AKT Peerless Environ. Svcs, Inc. - Lansing</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>27391</b>	Sample Number:	<b>27391-007A</b>

### Client Sample Information

Project Identification:	<b>5700L</b>	Client Sample Description:	<b>B-7</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>7</b>
Sample Date:	<b>2/18/2008</b>	Chain of Custody Number:	<b>67227</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 16.4%.**  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Dry Weight Determination (ASTM D 2974-87)</b>								
Percent Moisture (Water Content)	<b>16</b>	%	0.1	1	NA	2/19/2008	2/20/2008	BMG
<b>Michigan 10 Elements by ICP/MS (EPA 3050B/EPA 6020)</b>								
Arsenic	<b>4300</b>	µg/kg	100	1	45031	2/20/2008	2/20/2008	KLB
Barium	<b>74000</b>	µg/kg	1000	1	45031	2/20/2008	2/20/2008	KLB
Cadmium	<b>390</b>	µg/kg	50	1	45031	2/20/2008	2/20/2008	KLB
Chromium	<b>13000</b>	µg/kg	500	1	45031	2/20/2008	2/21/2008	KLB
Copper	<b>17000</b>	µg/kg	1000	1	45031	2/20/2008	2/20/2008	KLB
Lead	<b>120000</b>	µg/kg	1000	1	45031	2/20/2008	2/20/2008	KLB
Selenium	ND	µg/kg	200	1	45031	2/20/2008	2/20/2008	KLB
Silver	ND	µg/kg	100	1	45031	2/20/2008	2/20/2008	KLB
Zinc	<b>98000</b>	µg/kg	1000	1	45031	2/20/2008	2/20/2008	KLB
<b>Mercury by CVAAS (EPA 7471A)</b>								
Mercury	<b>3600</b>	µg/kg	50	1	45041	2/21/2008	2/21/2008	MAP
<b>Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3550B/EPA 8270C)</b>								
Acenaphthene	ND	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN
Acenaphthylene	ND	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN
Anthracene	ND	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN
Benzo(a)anthracene	ND	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN
B(a)pyrene	ND	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN
Benzo(b)fluoranthene	ND	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN

# Analytical Laboratory Report

Client Identification: **AKT Peerless Environ. Svcs, Inc. - Lansing**

Sample Matrix: **Soil/Solid**

Fibertec Project Number: **27391**

Sample Number: **27391-007A**

## Client Sample Information

Project Identification: **5700L**

Client Sample Description: **B-7**

Project Number: **NA**

Client Sample Number: **7**

Sample Date: **2/18/2008**

Chain of Custody Number: **67227**

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 16.4%.**  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
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**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3550B/EPA 8270C)</b>								
Benzo(ghi)perylene	ND	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN
Benzo(k)fluoranthene	ND	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN
Chrysene	ND	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN
Dibenzo(a,h)anthracene	ND	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN
Fluoranthene	ND	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN
Fluorene	ND	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN
Indeno(1,2,3-cd)pyrene	ND	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN
2-Methylnaphthalene	ND	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN
Phenanthrene	ND	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN
Pyrene	ND	µg/kg	330	1	44975	2/20/2008	2/20/2008	LAN

## Analytical Laboratory Report

Client Identification:	<b>AKT Peerless Environ. Svcs, Inc. - Lansing</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>27391</b>	Sample Number:	<b>27391-008</b>

### Client Sample Information

Project Identification:	<b>5700L</b>	Client Sample Description:	<b>FEB</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>8</b>
Sample Date:	<b>2/18/2008</b>	Chain of Custody Number:	<b>67227</b>

Comments:  
Definitions:

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**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
Acetone	ND	µg/L	50	1	VB08B19C	2/20/2008	2/20/2008	JAS
Acrylonitrile	ND	µg/L	2.0	1	VB08B19C	2/20/2008	2/20/2008	JAS
Benzene	ND	µg/L	1.0	1	VB08B19C	2/20/2008	2/20/2008	JAS
Bromobenzene	ND	µg/L	1.0	1	VB08B19C	2/20/2008	2/20/2008	JAS
Bromochloromethane	ND	µg/L	1.0	1	VB08B19C	2/20/2008	2/20/2008	JAS
Bromodichloromethane	ND	µg/L	1.0	1	VB08B19C	2/20/2008	2/20/2008	JAS
Bromoform	ND	µg/L	1.0	1	VB08B19C	2/20/2008	2/20/2008	JAS
Bromomethane	ND	µg/L	5.0	1	VB08B19C	2/20/2008	2/20/2008	JAS
2-Butanone	ND	µg/L	25	1	VB08B19C	2/20/2008	2/20/2008	JAS
n-Butylbenzene	ND	µg/L	1.0	1	VB08B19C	2/20/2008	2/20/2008	JAS
sec-Butylbenzene	ND	µg/L	1.0	1	VB08B19C	2/20/2008	2/20/2008	JAS
tert-Butylbenzene	ND	µg/L	1.0	1	VB08B19C	2/20/2008	2/20/2008	JAS
Carbon Disulfide	ND	µg/L	5.0	1	VB08B19C	2/20/2008	2/20/2008	JAS
Carbon Tetrachloride	ND	µg/L	1.0	1	VB08B19C	2/20/2008	2/20/2008	JAS
Chlorobenzene	ND	µg/L	1.0	1	VB08B19C	2/20/2008	2/20/2008	JAS
Chloroethane	ND	µg/L	5.0	1	VB08B19C	2/20/2008	2/20/2008	JAS
Chloroform	ND	µg/L	1.0	1	VB08B19C	2/20/2008	2/20/2008	JAS
Chloromethane	ND	µg/L	5.0	1	VB08B19C	2/20/2008	2/20/2008	JAS
2-Chlorotoluene	ND	µg/L	5.0	1	VB08B19C	2/20/2008	2/20/2008	JAS

## Analytical Laboratory Report

Client Identification:	<b>AKT Peerless Environ. Svcs, Inc. - Lansing</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>27391</b>	Sample Number:	<b>27391-008</b>

### Client Sample Information

Project Identification:	<b>5700L</b>	Client Sample Description:	<b>FEB</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>8</b>
Sample Date:	<b>2/18/2008</b>	Chain of Custody Number:	<b>67227</b>

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
Dibromochloromethane	ND	µg/L	5.0	1	VB08B19C	2/20/2008	2/20/2008	JAS
1,2-Dibromo-3-chloropropane	ND	µg/L	1.0	1	VB08B19C	2/20/2008	2/20/2008	JAS
Dibromomethane	ND	µg/L	5.0	1	VB08B19C	2/20/2008	2/20/2008	JAS
1,2-Dichlorobenzene	ND	µg/L	1.0	1	VB08B19C	2/20/2008	2/20/2008	JAS
1,3-Dichlorobenzene	ND	µg/L	1.0	1	VB08B19C	2/20/2008	2/20/2008	JAS
1,4-Dichlorobenzene	ND	µg/L	1.0	1	VB08B19C	2/20/2008	2/20/2008	JAS
Dichlorodifluoromethane	ND	µg/L	5.0	1	VB08B19C	2/20/2008	2/20/2008	JAS
1,1-Dichloroethane	ND	µg/L	1.0	1	VB08B19C	2/20/2008	2/20/2008	JAS
1,2-Dichloroethane	ND	µg/L	1.0	1	VB08B19C	2/20/2008	2/20/2008	JAS
1,1-Dichloroethene	ND	µg/L	1.0	1	VB08B19C	2/20/2008	2/20/2008	JAS
cis-1,2-Dichloroethene	ND	µg/L	1.0	1	VB08B19C	2/20/2008	2/20/2008	JAS
trans-1,2-Dichloroethene	ND	µg/L	1.0	1	VB08B19C	2/20/2008	2/20/2008	JAS
1,2-Dichloropropane	ND	µg/L	1.0	1	VB08B19C	2/20/2008	2/20/2008	JAS
cis-1,3-Dichloropropene	ND	µg/L	1.0	1	VB08B19C	2/20/2008	2/20/2008	JAS
trans-1,3-Dichloropropene	ND	µg/L	1.0	1	VB08B19C	2/20/2008	2/20/2008	JAS
Ethylbenzene	ND	µg/L	1.0	1	VB08B19C	2/20/2008	2/20/2008	JAS
Ethylene Dibromide	ND	µg/L	1.0	1	VB08B19C	2/20/2008	2/20/2008	JAS
2-Iodopropane	ND	µg/L	50	1	VB08B19C	2/20/2008	2/20/2008	JAS
Methyl Iodide	ND	µg/L	3.1	3.1	VB08B19C	2/20/2008	2/20/2008	JAS

## Analytical Laboratory Report

Client Identification:	<b>AKT Peerless Environ. Svcs, Inc. - Lansing</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>27391</b>	Sample Number:	<b>27391-008</b>

### Client Sample Information

Project Identification:	<b>5700L</b>	Client Sample Description:	<b>FEB</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>8</b>
Sample Date:	<b>2/18/2008</b>	Chain of Custody Number:	<b>67227</b>

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
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**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
Isopropylbenzene	ND	µg/L	5.0	1	VB08B19C	2/20/2008	2/20/2008	JAS
4-Methyl-2-pentanone	ND	µg/L	50	1	VB08B19C	2/20/2008	2/20/2008	JAS
Methylene Chloride	ND	µg/L	5.0	1	VB08B19C	2/20/2008	2/20/2008	JAS
MTBE	ND	µg/L	5.0	1	VB08B19C	2/20/2008	2/20/2008	JAS
Naphthalene	ND	µg/L	5.0	1	VB08B19C	2/20/2008	2/20/2008	JAS
n-Propylbenzene	ND	µg/L	1.0	1	VB08B19C	2/20/2008	2/20/2008	JAS
Styrene	ND	µg/L	1.0	1	VB08B19C	2/20/2008	2/20/2008	JAS
1,1,1,2-Tetrachloroethane	ND	µg/L	1.0	1	VB08B19C	2/20/2008	2/20/2008	JAS
1,1,2,2-Tetrachloroethane	ND	µg/L	1.0	1	VB08B19C	2/20/2008	2/20/2008	JAS
Tetrachloroethene	ND	µg/L	1.0	1	VB08B19C	2/20/2008	2/20/2008	JAS
Toluene	ND	µg/L	1.0	1	VB08B19C	2/20/2008	2/20/2008	JAS
1,2,4-Trichlorobenzene	ND	µg/L	5.0	1	VB08B19C	2/20/2008	2/20/2008	JAS
1,1,1-Trichloroethane	ND	µg/L	1.0	1	VB08B19C	2/20/2008	2/20/2008	JAS
1,1,2-Trichloroethane	ND	µg/L	1.0	1	VB08B19C	2/20/2008	2/20/2008	JAS
Trichloroethene	ND	µg/L	1.0	1	V908B21A	2/21/2008	2/21/2008	JAS
Trichlorofluoromethane	ND	µg/L	1.0	1	VB08B19C	2/20/2008	2/20/2008	JAS
1,2,3-Trichloropropane	ND	µg/L	1.0	1	VB08B19C	2/20/2008	2/20/2008	JAS
1,1,1-Trimethylbenzene	ND	µg/L	1.0	1	VB08B19C	2/20/2008	2/20/2008	JAS
1,2,4-Trimethylbenzene	ND	µg/L	1.0	1	VB08B19C	2/20/2008	2/20/2008	JAS



## Analytical Laboratory Report

Client Identification:	<b>AKT Peerless Environ. Svcs, Inc. - Lansing</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>27391</b>	Sample Number:	<b>27391-008</b>

### Client Sample Information

Project Identification:	<b>5700L</b>	Client Sample Description:	<b>FEB</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>8</b>
Sample Date:	<b>2/18/2008</b>	Chain of Custody Number:	<b>67227</b>

Comments:  
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**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
1,3,5-Trimethylbenzene	ND	µg/L	1.0	1	VB08B19C	2/20/2008	2/20/2008	JAS
Vinyl Chloride	ND	µg/L	1.0	1	VB08B19C	2/20/2008	2/20/2008	JAS
Xylenes	ND	µg/L	3.0	1	VB08B19C	2/20/2008	2/20/2008	JAS

## Analytical Laboratory Report

Client Identification:	<b>AKT Peerless Environ. Svcs, Inc. - Lansing</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>27391</b>	Sample Number:	<b>27391-008A</b>

### Client Sample Information

Project Identification:	<b>5700L</b>	Client Sample Description:	<b>FEB</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>8</b>
Sample Date:	<b>2/18/2008</b>	Chain of Custody Number:	<b>67227</b>

Comments:  
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**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Michigan 10 Elements by ICP/MS, Total (EPA 3005A/EPA 6020)</b>								
Arsenic	ND	µg/L	5.0	1	45021	2/19/2008	2/19/2008	KLB
Barium	ND	µg/L	100	1	45021	2/19/2008	2/19/2008	KLB
Cadmium	ND	µg/L	1.0	1	45021	2/19/2008	2/19/2008	KLB
Chromium	ND	µg/L	10	1	45021	2/19/2008	2/19/2008	KLB
Copper	ND	µg/L	4.0	1	45021	2/19/2008	2/19/2008	KLB
Lead	ND	µg/L	3.0	1	45021	2/19/2008	2/19/2008	KLB
Selenium	ND	µg/L	5.0	1	45021	2/19/2008	2/19/2008	KLB
Silver	ND	µg/L	0.20	1	45021	2/19/2008	2/19/2008	KLB
Zinc	ND	µg/L	50	1	45021	2/19/2008	2/19/2008	KLB
<b>Mercury by CVAAS, Total (EPA 7470A)</b>								
Mercury	ND	µg/L	0.20	1	45030	2/20/2008	2/20/2008	MAP

# Analytical Laboratory Report

Client Identification: **AKT Peerless Environ. Svcs, Inc. - Lansing**

Sample Matrix: **Ground Water**

Fibertec Project Number: **27391**

Sample Number: **27391-008B**

## Client Sample Information

Project Identification: **5700L**

Client Sample Description: **FEB**

Project Number: **NA**

Client Sample Number: **8**

Sample Date: **2/18/2008**

Chain of Custody Number: **67227**

Comments:

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**E = Estimated value; J = Analyte positively identified - estimated value**

**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**

**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Ethylene Glycol by GC/FID (EPA 8015B)</b>								
Ethylene glycol	ND	µg/L	10000	1	45026	2/19/2008	2/19/2008	BDA
<b>Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3535/EPA 8270C)</b>								
Acenaphthene	ND	µg/L	5.0	1	45027	2/20/2008	2/20/2008	LAN
Acenaphthylene	ND	µg/L	5.0	1	45027	2/20/2008	2/20/2008	LAN
Anthracene	ND	µg/L	5.0	1	45027	2/20/2008	2/20/2008	LAN
Benzo(a)anthracene	ND	µg/L	1.0	1	45027	2/20/2008	2/20/2008	LAN
Benzo(a)pyrene	ND	µg/L	1.0	1	45027	2/20/2008	2/20/2008	LAN
Benzo(b)fluoranthene	ND	µg/L	1.0	1	45027	2/20/2008	2/20/2008	LAN
Benzo(ghi)perylene	ND	µg/L	1.0	1	45027	2/20/2008	2/20/2008	LAN
Benzo(k)fluoranthene	ND	µg/L	1.0	1	45027	2/20/2008	2/20/2008	LAN
Chrysene	ND	µg/L	1.0	1	45027	2/20/2008	2/20/2008	LAN
Dibenzo(a,h)anthracene	ND	µg/L	2.0	1	45027	2/20/2008	2/20/2008	LAN
Fluoranthene	ND	µg/L	1.0	1	45027	2/20/2008	2/20/2008	LAN
Fluorene	ND	µg/L	5.0	1	45027	2/20/2008	2/20/2008	LAN
Indeno(1,2,3-cd)pyrene	ND	µg/L	2.0	1	45027	2/20/2008	2/20/2008	LAN
2-Methylnaphthalene	ND	µg/L	5.0	1	45027	2/20/2008	2/20/2008	LAN
Phenanthrene	ND	µg/L	2.0	1	45027	2/20/2008	2/20/2008	LAN
Pyrene	ND	µg/L	5.0	1	45027	2/20/2008	2/20/2008	LAN

## Analytical Laboratory Report

Client Identification:	<b>AKT Peerless Environ. Svcs, Inc. - Lansing</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>27391</b>	Sample Number:	<b>27391-009</b>

### Client Sample Information

Project Identification:	<b>5700L</b>	Client Sample Description:	<b>B-1-1WS</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>9</b>
Sample Date:	<b>2/18/2008</b>	Chain of Custody Number:	<b>67227</b>

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
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**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>UST VOCs by GC/MS (EPA 5030B/EPA 8260B)</b>								
Benzene	ND	µg/L	1.0	1	V908B19A	2/19/2008	2/19/2008	JAS
1,2-Dichloroethane	ND	µg/L	1.0	1	V908B19A	2/19/2008	2/19/2008	JAS
Ethylbenzene	ND	µg/L	1.0	1	V908B19A	2/19/2008	2/19/2008	JAS
Ethylene Dibromide	ND	µg/L	1.0	1	V908B19A	2/19/2008	2/19/2008	JAS
2-Methylnaphthalene	ND	µg/L	5.0	1	V908B19A	2/19/2008	2/19/2008	JAS
MTBE	ND	µg/L	5.0	1	V908B19A	2/19/2008	2/19/2008	JAS
Naphthalene	ND	µg/L	5.0	1	V908B19A	2/19/2008	2/19/2008	JAS
Toluene	ND	µg/L	1.0	1	V908B19A	2/19/2008	2/19/2008	JAS
1,2,3-Trimethylbenzene	ND	µg/L	1.0	1	V908B19A	2/19/2008	2/19/2008	JAS
1,2,4-Trimethylbenzene	ND	µg/L	1.0	1	V908B19A	2/19/2008	2/19/2008	JAS
1,3,5-Trimethylbenzene	ND	µg/L	1.0	1	V908B19A	2/19/2008	2/19/2008	JAS
Xylenes	ND	µg/L	3.0	1	V908B19A	2/19/2008	2/19/2008	JAS

## Analytical Laboratory Report

Client Identification: **AKT Peerless Environ. Svcs, Inc. - Lansing** Sample Matrix: **Ground Water**  
Fibertec Project Number: **27391** Sample Number: **27391-009A**

### Client Sample Information

Project Identification: **5700L** Client Sample Description: **B-1-1WS**  
Project Number: **NA** Client Sample Number: **9**  
Sample Date: **2/18/2008** Chain of Custody Number: **67227**

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Lead by ICP/MS, Total (EPA 3005A/EPA 6020)</b>								
Lead	<b>250</b>	$\mu\text{g/L}$	3.0	1	45021	2/19/2008	2/19/2008	KLB

## Analytical Laboratory Report

Client Identification:	<b>AKT Peerless Environ. Svcs, Inc. - Lansing</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>27391</b>	Sample Number:	<b>27391-009B</b>

### Client Sample Information

Project Identification:	<b>5700L</b>	Client Sample Description:	<b>B-1-1WS</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>9</b>
Sample Date:	<b>2/18/2008</b>	Chain of Custody Number:	<b>67227</b>

Comments:

Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Ethylene Glycol by GC/FID (EPA 8015B)</b>								
Ethylene glycol	ND	µg/L	10000	1	45026	2/19/2008	2/19/2008	BDA

# Analytical Laboratory Report

Client Identification: **AKT Peerless Environ. Svcs, Inc. - Lansing**

Sample Matrix: **Ground Water**

Fibertec Project Number: **27391**

Sample Number: **27391-010**

## Client Sample Information

Project Identification: **5700L**

Client Sample Description: **FD**

Project Number: **NA**

Client Sample Number: **10**

Sample Date: **2/18/2008**

Chain of Custody Number: **67228**

Comments:

Definitions:

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**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
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**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte

Result

Units

Report Limit

Dilution  
Factor

Prep  
Batch

Prep Date/Time

Analysis Date/Time

Analyst

### UST VOCs by GC/MS (EPA 5030B/EPA 8260B)

Benzene	ND	µg/L	1.0	1	V908B19A	2/19/2008	2/19/2008	JAS
1,2-Dichloroethane	ND	µg/L	1.0	1	V908B19A	2/19/2008	2/19/2008	JAS
Ethylbenzene	ND	µg/L	1.0	1	V908B19A	2/19/2008	2/19/2008	JAS
Ethylene Dibromide	ND	µg/L	1.0	1	V908B19A	2/19/2008	2/19/2008	JAS
2-Methylnaphthalene	ND	µg/L	5.0	1	V908B19A	2/19/2008	2/19/2008	JAS
MTBE	ND	µg/L	5.0	1	V908B19A	2/19/2008	2/19/2008	JAS
Naphthalene	ND	µg/L	5.0	1	V908B19A	2/19/2008	2/19/2008	JAS
Toluene	ND	µg/L	1.0	1	V908B19A	2/19/2008	2/19/2008	JAS
1,2,3-Trimethylbenzene	ND	µg/L	1.0	1	V908B19A	2/19/2008	2/19/2008	JAS
1,2,4-Trimethylbenzene	ND	µg/L	1.0	1	V908B19A	2/19/2008	2/19/2008	JAS
1,3,5-Trimethylbenzene	ND	µg/L	1.0	1	V908B19A	2/19/2008	2/19/2008	JAS
Xylenes	ND	µg/L	3.0	1	V908B19A	2/19/2008	2/19/2008	JAS

## Analytical Laboratory Report

Client Identification:	<b>AKT Peerless Environ. Svcs, Inc. - Lansing</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>27391</b>	Sample Number:	<b>27391-010A</b>

### Client Sample Information

Project Identification:	<b>5700L</b>	Client Sample Description:	<b>FD</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>10</b>
Sample Date:	<b>2/18/2008</b>	Chain of Custody Number:	<b>67228</b>

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
---------	--------	-------	--------------	-----------------	------------	----------------	--------------------	---------

#### Michigan 10 Elements by ICP/MS, Total (EPA 3005A/EPA 6020)

Arsenic	<b>6.3</b>	µg/L	5.0	1	45021	2/19/2008	2/19/2008	KLB
Barium	<b>420</b>	µg/L	100	1	45021	2/19/2008	2/19/2008	KLB
Cadmium	<b>ND</b>	µg/L	1.0	1	45021	2/19/2008	2/19/2008	KLB
Chromium	<b>17</b>	µg/L	10	1	45021	2/19/2008	2/19/2008	KLB
Copper	<b>20</b>	µg/L	4.0	1	45021	2/19/2008	2/19/2008	KLB
Lead	<b>240</b>	µg/L	3.0	1	45021	2/19/2008	2/19/2008	KLB
Selenium	<b>ND</b>	µg/L	5.0	1	45021	2/19/2008	2/19/2008	KLB
Silver	<b>1.1</b>	µg/L	0.20	1	45021	2/19/2008	2/19/2008	KLB
Zinc	<b>160</b>	µg/L	50	1	45021	2/19/2008	2/19/2008	KLB

#### Mercury by CVAAS, Total (EPA 7470A)

Mercury	<b>0.38</b>	µg/L	0.20	1	45030	2/20/2008	2/20/2008	MAP
---------	-------------	------	------	---	-------	-----------	-----------	-----



## Analytical Laboratory Report

Client Identification: **AKT Peerless Environ. Svcs, Inc. - Lansing** Sample Matrix: **Ground Water**

Fibertec Project Number: **27391** Sample Number: **27391-010B**

### Client Sample Information

Project Identification: **5700L** Client Sample Description: **FD**

Project Number: **NA** Client Sample Number: **10**

Sample Date: **2/18/2008** Chain of Custody Number: **67228**

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Ethylene Glycol by GC/FID (EPA 8015B)</b>								
Ethylene glycol	ND	µg/L	10000	1	45026	2/19/2008	2/19/2008	BDA

# Analytical Laboratory Report

Client Identification: **AKT Peerless Environ. Svcs, Inc. - Lansing**

Sample Matrix: **Soil/Solid**

Fibertec Project Number: **27391**

Sample Number: **27391-011**

## Client Sample Information

Project Identification: **5700L**

Client Sample Description: **METH BLANK**

Project Number: **NA**

Client Sample Number: **11**

Sample Date: **2/18/2008**

Chain of Custody Number: **67228**

Comments:

Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)</b>								
Acetone	ND	µg/kg	1000	1	VA08B21A	2/18/2008	2/21/2008	JLH
Acrylonitrile	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
Benzene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Bromobenzene	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
Bromochloromethane	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
Bromodichloromethane	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
Bromoform	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
Bromomethane	ND	µg/kg	200	1	VA08B21A	2/18/2008	2/21/2008	JLH
2-Butanone	ND	µg/kg	750	1	VA08B21A	2/18/2008	2/21/2008	JLH
n-Butylbenzene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
sec-Butylbenzene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
tert-Butylbenzene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Carbon Disulfide	ND	µg/kg	250	1	VA08B21A	2/18/2008	2/21/2008	JLH
Carbon Tetrachloride	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Chlorobenzene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Chloroethane	ND	µg/kg	250	1	VA08B21A	2/18/2008	2/21/2008	JLH
Chloroform	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Chloromethane	ND	µg/kg	250	1	VA08B21A	2/18/2008	2/21/2008	JLH
o-Toluene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH

# Analytical Laboratory Report

Client Identification: **AKT Peerless Environ. Svcs, Inc. - Lansing**

Sample Matrix: **Soil/Solid**

Fibertec Project Number: **27391**

Sample Number: **27391-011**

## Client Sample Information

Project Identification: **5700L**

Client Sample Description: **METH BLANK**

Project Number: **NA**

Client Sample Number: **11**

Sample Date: **2/18/2008**

Chain of Custody Number: **67228**

Comments:

Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
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**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)</b>								
Dibromochloromethane	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,2-Dibromo-3-chloropropane	ND	µg/kg	10	1	VA08B21A	2/18/2008	2/21/2008	JLH
Dibromomethane	ND	µg/kg	250	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,2-Dichlorobenzene	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,3-Dichlorobenzene	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,4-Dichlorobenzene	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
Dichlorodifluoromethane	ND	µg/kg	250	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,1-Dichloroethane	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,2-Dichloroethane	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,1-Dichloroethene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
cis-1,2-Dichloroethene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
trans-1,2-Dichloroethene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,2-Dichloropropane	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
cis-1,3-Dichloropropene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
trans-1,3-Dichloropropene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Ethylbenzene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Ethylene Dibromide	ND	µg/kg	20	1	VA08B21A	2/18/2008	2/21/2008	JLH
2-Hexanone	ND	µg/kg	2500	1	VA08B21A	2/18/2008	2/21/2008	JLH
Methyl iodide	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH

# Analytical Laboratory Report

Client Identification: **AKT Peerless Environ. Svcs, Inc. - Lansing**

Sample Matrix: **Soil/Solid**

Fibertec Project Number: **27391**

Sample Number: **27391-011**

## Client Sample Information

Project Identification: **5700L**

Client Sample Description: **METH BLANK**

Project Number: **NA**

Client Sample Number: **11**

Sample Date: **2/18/2008**

Chain of Custody Number: **67228**

Comments:

Definitions:

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**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**

**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)</b>								
Isopropylbenzene	ND	µg/kg	250	1	VA08B21A	2/18/2008	2/21/2008	JLH
4-Methyl-2-pentanone	ND	µg/kg	2500	1	VA08B21A	2/18/2008	2/21/2008	JLH
Methylene Chloride	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
2-Methylnaphthalene	ND	µg/kg	330	1	VA08B21A	2/18/2008	2/21/2008	JLH
MTBE	ND	µg/kg	250	1	VA08B21A	2/18/2008	2/21/2008	JLH
Naphthalene	ND	µg/kg	330	1	VA08B21A	2/18/2008	2/21/2008	JLH
n-Propylbenzene	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
Styrene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,1,1,2-Tetrachloroethane	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,1,2,2-Tetrachloroethane	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Tetrachloroethene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Toluene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,2,4-Trichlorobenzene	ND	µg/kg	330	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,1,1-Trichloroethane	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,1,2-Trichloroethane	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Trichloroethene	ND	µg/kg	50	1	VA08B21A	2/18/2008	2/21/2008	JLH
Trichlorofluoromethane	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,2,3-Trichloropropane	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,2,4-Dimethylbenzene	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH

## Analytical Laboratory Report

Client Identification: **AKT Peerless Environ. Svcs, Inc. - Lansing**

Sample Matrix: **Soil/Solid**

Fibertec Project Number: **27391**

Sample Number: **27391-011**

### Client Sample Information

Project Identification: **5700L**

Client Sample Description: **METH BLANK**

Project Number: **NA**

Client Sample Number: **11**

Sample Date: **2/18/2008**

Chain of Custody Number: **67228**

Comments:

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**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
---------	--------	-------	--------------	-----------------	------------	----------------	--------------------	---------

#### Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)

1,2,4-Trimethylbenzene	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
1,3,5-Trimethylbenzene	ND	µg/kg	100	1	VA08B21A	2/18/2008	2/21/2008	JLH
Vinyl Chloride	ND	µg/kg	40	1	VA08B21A	2/18/2008	2/21/2008	JLH
Xylenes	ND	µg/kg	150	1	VA08B21A	2/18/2008	2/21/2008	JLH



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Fax: 248 446 5701**

67227

PAGE 1 of 2

Client Name:		AET Pearless	
Contact Person:		Jennifer Bowyer	
Project Name/ Number:		5700L	
Purchase Order #			
Lab Sample #	Date	Time	Client Sample #
2-18-08	9:30		B-1
2-18-08	10:15		B-2
2-18-08	10:50		B-3
2-18-08	12:00		B-4
2-18-08	1:00		B-5
2-18-08	1:45		B-6
2-18-08	2:20		B-7
2-18-08	2:30		FED
2-18-08	3:00		B-1-1WS
Comments:			
Relinquished By: Pat Hall			
Relinquished By: Date/Time: 2-18-08			
Relinquished By: Date/Time: Received By: Erika Shumicki 1615 116140			
LAB USE ONLY:			
Fibertec project number: 27391			
Laboratory Tracking: Receipt: 706			
Temperature: 70C			
COC Revision: April, 2006			





**SECTION 7A COMPLIANCE ANALYSIS  
301 W. LENAWEЕ STREET  
LANSING, MICHIGAN**

*for*

**ELLE ENTERPRISES, L.L.C.  
1651 WEST LAKE LANSING ROAD  
EAST LANSING, MICHIGAN 48823**

**AKT PEERLESS PROJECT NO. 5700L  
MARCH 13, 2008**



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**(cont.)**

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APPENDIX B .....	CONTRACTOR DISCLOSURE STATEMENT

**SECTION 7A COMPLIANCE ANALYSIS  
301 W. LENAWEE  
LANSING, MICHIGAN**

**PREPARED FOR  
ELLE ENTERPRISES, L.L.C.  
EAST LANSING, MICHIGAN  
AKT PEERLESS PROJECT NO. 5700L**

**1.0 DETAILED CHARACTERISTICS OF PROPERTY USE**

**1.1 CURRENT USE OF THE PROPERTY**

The subject property, located at 301 W. Lenawee Street in Lansing, Michigan, is currently unoccupied. Young Men's Christian Association (YMCA) formerly owned and operated the subject property. The existing 6-story building was utilized by YMCA for residential and recreational purposes. The residential portion of the subject building was vacated in approximately 1988 and the recreational and remaining portions of the subject building were vacated in January 2003.

Elle Enterprises, L.L.C. purchased the subject property in February 2008, and plans to demolish the existing structure and completely reconstruct the subject property. The new construction will include a multi-story structure with parking, office and retail space. The proposed building footprint will occupy the entire 2-acre property.

**1.2 EXISTING INFRASTRUCTURE FEATURES**

The subject property is located in the southwest quadrant of Section 16 in the City of Lansing (T.4N./R.2W.), Ingham County, Michigan. The subject property is situated south of West Lenawee Street and between Townsend and South Walnut Streets. It consists of a rectangular parcel that contains approximately 2.00 acres. The subject property's parcel identification number is 33-01-01-16-379-083. A copy of a Topographic Location Map is provided as Figure 1. A Sample Location Map showing the layout of the subject property is included as Figure 2.

The subject property was developed with residences and offices beginning in at least 1898. In 1950 the YMCA residential and recreational building was constructed. Between 1950 and 1997 the remaining houses on the subject property were demolished. The residential portion of the subject building was vacated around 1990. The recreational portion of the subject building was vacated in 2003 and the building has been vacant since that time.

Municipal storm water collection and sewage was available in the area since 1891 and 1906, respectively. Municipal water and electric were provided to the subject property since the early 1950s, and natural gas was provided in 1977. The property is accessible by paved roadways.



### **1.3 PROPOSED CONSTRUCTION ACTIVITIES**

The reconstruction plan for the property includes the following:

- Complete demolition of existing building and parking areas;
- Backfill of existing building footprint to design grades;
- Excavation for subterranean parking levels to at least 12 feet below existing grade;
- Construction of 12-story structure, including multi-level parking on lower levels and a commercial/retail tower;
- Landscaping surrounding proposed structure.

Refer to Appendix A for Proposed Reuse Plan sheets.

### **2.0 HAZARDOUS SUBSTANCE INFORMATION**

#### **2.1 SUBSURFACE INVESTIGATIONS**

AKT Peerless Environmental Services (AKT Peerless) conducted a Phase I and Phase II investigation and also obtained and reviewed documents relating to historical environmental investigations at the subject property. Previous environmental investigations were obtained from the Michigan Department of Environmental Quality (MDEQ) files.

The subject property was initially developed with residential buildings and offices in the late 1800s. In approximately 1950, YMCA constructed the existing structure, demolishing several residences and backfilling the basements.

Snell Environmental Group prepared a Phase I ESA and an asbestos survey in 1991. They concluded that some asbestos was present in pipe wrap and tile, but there were no other environmental concerns associated with the property. In 1999, a transaction screen was performed by P.M. Environmental on the western portion of the subject property. The report concluded that a demolished structure was backfilled with clean fill, demolition debris was removed and disposed, and no concerns were identified.

AKT Peerless conducted a Phase I ESA on the subject property in November, 2007. Several recognized environmental concerns (RECs) were identified for the subject property based on historical use of the property. The RECs included (1) a historical machine shop located in the west-central portion of the subject property, (2) leaking containers of hazardous materials stored within the abandoned subject building, and (3) a former gasoline station on the northern adjoining property.

On February 15, 16, and 18, 2008, AKT Peerless investigated the RECs identified in the Phase I ESA by conducting a Phase II Subsurface Investigation (SI). As part of the Phase II SI, a geophysical survey was conducted using ground-penetrating radar. Several areas of backfill

were identified in the survey. Refer to Figure 2, Geophysical Survey Area Map. AKT Peerless conducted sampling of the backfill areas and areas linked to RECs, and analyzed the soil and water samples collected. The soil and groundwater samples were analyzed for VOCs, PNAs, "Michigan 10 Metals" and/or MDEQ Leaded Gasoline Parameters.

The scope of work for the SI included advancement of seven soil borings and one temporary monitoring well. AKT Peerless collected seven soil samples and one groundwater sample for analysis. Refer to Figure 2, Sample Location Map for soil boring and temporary monitoring well locations.

Refer to Table 1 for Soil Analytical Results and Table 2 for Groundwater Analytical Results. Refer to Figure 3 for site maps showing soil and groundwater exceedances of Residential/Commercial I Cleanup Criteria.

## **2.2 KNOWN CONTAMINATION**

AKT Peerless conducted a subsurface investigation on the subject property in February 2008. The subsurface investigation was designed to assess areas determined most likely to reveal impact on the subject property based on historical, observed, and recorded site conditions. AKT Peerless is not aware of any contaminated areas beyond those identified in the Phase II Subsurface Investigation report.

The following tables list contaminants that exceed MDEQ Residential/Commercial I Cleanup Criteria established under Part 201 of the Natural Resources and Environmental Protection Act (NREPA), 1995 PA 451, as amended (Part 201). The sample identification, maximum contaminant concentrations, and Part 201 Residential/Commercial I Cleanup Criteria that have been exceeded are listed for each parameter.



### Summary of Soil Analytical Results Exceeding Residential/Commercial I Cleanup Criteria

Parameter (CAS Number)	Residential and Commercial I Criteria Exceeded	Sample Locations Exceeding MDEQ Residential/Commercial I Cleanup Criteria	Maximum Concentration (µg/Kg)
Chromium (18540299)	Groundwater-Surface Water Interface Protection	B-2 (3.5-4.0') B-4 (2.0-3.0') B-5 (4.0-5.0') B-6 (3.0-4.0') B-7 (4.0-5.0')	14,000
Mercury (7439976)	Residential Drinking Water Protection	B-2 (3.5-4.0') B-4 (2.0-3.0') B-5 (4.0-5.0') B-6 (3.0-4.0')	320
	Residential Drinking Water Protection Groundwater-Surface Water Interface Protection	B-7 (4.0-5.0')	3,600
Selenium (7782492)	Groundwater-Surface Water Interface Protection	B-2 (3.5-4.0')	450
Silver (7440224)	Groundwater-Surface Water Interface Protection	B-4 (2.0-3.0') B-5 (4.0-5.0')	140
2-Methylnaphthalene (91576)	Residential Drinking Water Protection	B-3 (13.5-14.5')	74,000
Naphthalene (91203)	Groundwater-Surface Water Interface Protection	B-3 (13.5-14.5')	4,900

### Summary of Water Analytical Results Exceeding Industrial Cleanup Criteria

Parameter (CAS Number)	Residential and Commercial I Criteria Exceeded	Sample Locations Exceeding MDEQ Residential/Commercial I Cleanup Criteria	Maximum Concentration (µg/L)
Chromium (18540299)	Groundwater-Surface Water Interface Criteria	FD (B-1 dup)	17
Lead (7439921)	Residential Drinking Water Criteria	B-1-1WS FD (B-1 dup)	250
Mercury (7439976)	Groundwater-Surface Water Interface Criteria	FD (B-1 dup)	0.38
Silver (7440224)	Groundwater-Surface Water Interface Criteria	FD (B-1 dup)	1.1

Sample locations are depicted on Figure 2, and exceedence locations are mapped on Figure 3. Complete soil and groundwater analytical results are summarized in Tables 1 and 2.

### **2.3 HAZARDOUS SUBSTANCE CONCENTRATIONS, FATE, AND TRANSPORT**

Environmental assessments indicate that soil and groundwater have been impacted by hazardous substances on the subject property. Borings on the property were conducted to a maximum depth of 20-feet below ground surface (bgs). The majority of soil samples were collected between 2 and 5-feet, with one at 14.5-feet bgs. Groundwater was collected at between 5 and 10-feet bgs.

Naphthalene and 2-methylnaphthalene were detected in soil in B-3 near the Lenawee Street right-of-way. Metals, including chromium, mercury, selenium, and silver, were detected in soils. Groundwater sampled in B-1 near the Lenawee Street right-of-way contained metals contamination, including chromium, lead, mercury, and silver.

Concentrations of hazardous substances identified on the subject property are shown in Tables 1 and 2 and are listed in Section 2.2.

The shallow groundwater encountered during the Phase II SI is likely perched and is not a continuous groundwater table. However, a potential method of hazardous substance transport could be soil leaching to groundwater unit(s), with subsequent lateral transport or migration of the existing contamination within groundwater unit(s). Based on a review of local topography and historical environmental assessments, groundwater flow direction is expected to be south-southeast. Groundwater modeling, fate and transport studies have not been conducted with respect to the identified contamination. Based on existing data and discontinuous groundwater units encountered no off-site migration of hazardous substances was identified.

### **2.4 CONTAMINATED SOIL RUNOFF TO SURFACE WATER**

Protecting the water bodies of the State is part of responsible site management. Construction activities are proposed that would disturb soils at the site; consequently, on-site activities may cause contaminated soil to runoff to surface waters if containment measures are not installed and maintained.

The nearest surface water proximate to the subject property is the Grand River, which is located 1,500 feet southeast of the subject property. The subject property is located in an urban area that has a relatively consistent, shallow slope toward the Grand River. Due to the distance to the Grand River, it is unlikely that soil from the subject property would directly impact the river. However, storm water for the subject property, surrounding streets and adjoining properties is collected into the municipal storm sewer system. To prevent contaminated soil from entering the storm water sewer system, erosion and sedimentation controls will be implemented during the construction phase(s) to control sedimentation from disturbed soils. All appropriate soil erosion and sedimentation permitting will be obtained.



## **2.5 EXPOSURE PATHWAY EVALUATION**

The analysis of potential human exposure pathways is based on existing conditions and proposed site development activities that will occur on the subject property. The intended land use of the subject property falls under the “Commercial I” use category pursuant to the MDEQ’s Operational Memorandum No. 1. Therefore hazardous substances identified on the subject property have been compared to Residential and Commercial I Cleanup Criteria.

Contaminant levels identified at the subject property in soil exceed Residential Drinking Water Protection, and Groundwater Surface Water Interface Protection criteria, but are below other cleanup criteria.

Contaminant levels identified at the subject property in groundwater exceed Residential Drinking Water and Groundwater Surface Water Interface criteria, but are below other cleanup criteria.

The analysis of potential exposure pathways is based on existing conditions and proposed site development activities that will occur on the subject property. Additional due care measures during future use are described in Section 4.1.

## **2.6 SOIL EXPOSURE**

The following subsections describe the potential human soil exposure pathways and evaluate hazardous substances in light of the applicable criteria. As discussed above, hazardous substance concentrations have been compared with Part 201 Residential/Commercial I Cleanup Criteria. The following soil exposure pathways have been evaluated:

- Drinking Water Protection Criteria
- Groundwater Contact Protection Criteria
- Soil Volatilization to Indoor Air Inhalation Criteria
- Infinite Source Volatile Soil Inhalation Criteria
- Particulate Soil Inhalation Criteria
- Direct Contact Criteria

The majority of soil samples were collected between the 2 and 5 feet bgs, with one sample at 14.5-feet bgs. As part of the construction of the new development, the upper 12 feet of soil will be excavated. Some soil may be reused as backfill for the existing structure’s basement.

### **2.6.1 Drinking Water Protection**

Contaminant concentrations were identified exceeding drinking water protection criteria. The subject property and surrounding area are provided with potable water exclusively from a municipal system, and future operation plans at the subject property do not include development of groundwater resources for the purpose of obtaining potable water. No water wells are located on the property. Therefore, drinking water is not a complete exposure pathway.



### **2.6.2 Groundwater Contact Protection Criteria**

Analytical results were compared to groundwater contact protection criteria. Soil contaminant levels are below groundwater contact protection criteria. Based on analytical results groundwater contact protection does not represent a risk to potential receptors.

### **2.6.3 Soil Volatilization to Indoor Air Inhalation Criteria**

Analytical results were compared to soil volatilization to indoor air inhalation criteria. Soil contaminant levels are below soil volatilization to indoor air inhalation criteria. Based on analytical results soil volatilization to indoor air inhalation criteria does not represent a risk to potential receptors.

### **2.6.4 Infinite Source Volatile Soil Inhalation Criteria**

Analytical results show that contaminant levels are below the infinite source volatile soil inhalation criteria. Based on analytical results infinite source volatile soil inhalation does not represent a risk to potential receptors.

### **2.6.5 Particulate Soil Inhalation Criteria**

Analytical results show that contaminant levels are below the particulate soil inhalation criteria. In addition, the proposed development includes concrete floors and pavement which will isolate impacted soils from the surface. Based on analytical results and the above information, particulate soil inhalation does not represent a risk to potential receptors.

### **2.6.6 Direct Contact**

Analytical results show that contaminant levels are below the direct contact criteria. In addition, the proposed development includes concrete floors and pavement which will isolate impacted soils from the surface. Based on analytical results and the above information, direct contact does not represent a risk to potential receptors.

## **2.7 GROUNDWATER EXPOSURE**

The following subsections describe the potential groundwater exposure pathways and evaluate hazardous substances in light of the applicable criteria. As discussed above, hazardous substance concentrations have been compared with Part 201 Residential/Commercial I Cleanup Criteria. The following groundwater exposure pathways have been evaluated:

- Drinking Water Criteria
- Groundwater Volatilization to Indoor Air Inhalation Criteria
- Groundwater Contact Criteria
- Acute Inhalation Screening Level

Groundwater was encountered at about 6 feet bgs. It is likely that the water encountered was a perched water pocket rather than a groundwater table. In addition, municipal water services the subject property and surrounding properties. No drinking water wells exist or are proposed to be installed at the subject property.

### **2.7.1 Drinking Water Criteria**

Contaminant concentrations exceed drinking water criteria. The subject property and surrounding area are provided with potable water exclusively from a municipal system. Therefore, exposure through drinking water is not a complete pathway, based upon: (1) the use of municipal water for drinking, (2) no wells are currently located at the property, and (3) no drinking water well will be installed in the future.

### **2.7.2 Groundwater Volatilization to Indoor Air Inhalation**

Analytical results indicate that contaminant levels are below groundwater volatilization to indoor air inhalation criteria. In addition, groundwater was not encountered across the entire property. The proposed development includes a subgrade parking structure which will require removal of the impacted soil. Further, the parking structure will be ventilated separately from the occupied building and eliminate the risk of volatile compounds reaching indoor air. Concrete floors and pavement will further isolate the building interior. Based on analytical results and the above information, groundwater volatilization to indoor air inhalation does not represent a risk to potential receptors.

### **2.7.3 Groundwater Contact Criteria**

Analytical results were compared to the groundwater contact criteria. Analytical results indicate that contaminant levels are below groundwater contact criteria. Groundwater contact may occur during the proposed excavation and construction, but based on analytical results, groundwater contact does not represent a risk to potential receptors.

### **2.7.4 Acute Inhalation Screening Level**

Analytical results were compared to acute inhalation screening levels. Groundwater contaminant levels are below acute inhalation screening levels. Based on analytical results acute inhalation does not represent a risk to potential receptors.

## **2.8 FLAMMABILITY AND EXPLOSIVITY**

Analytical results were compared to flammability and explosivity screening levels. Groundwater contaminant levels are below flammability and explosivity levels. Based on site conditions encountered and analytical results no flammability and explosivity hazards were identified.

## **3.0 PLAN FOR RESPONSE ACTIVITY**

Based on the current site data, the following exposure pathways for groundwater and soil are potentially complete and require response activity:

### **Soil**

Based on the identified contamination, current and proposed use of the site, proposed construction activities, and redevelopment plan, no response activities are necessary to satisfy obligations under Section 7a and the Part 10 rules.



#### Groundwater

Based on the identified contamination, current and proposed use of the site, proposed construction activities, and redevelopment plan, no response activities are necessary to satisfy obligations under Section 7a and the Part 10 rules.

### **4.0 EVALUATION AND DEMONSTRATION OF COMPLIANCE WITH DUE CARE OBLIGATIONS**

The following sections provide documentation that the proposed use of the subject property will comply with Section 7a obligations. Compliance with due care obligations is discussed in the following sections to ensure due care needs are met for the property while the property is vacant and during future commercial operations. In addition, exacerbation and due care are discussed in relation to hypothetical future subsurface activities.

#### **4.1 PROCEDURES (RECOMMENDATIONS)**

As the following sections address, based on current and proposed use of the site, proposed construction activities, and redevelopment plan, no exposures are expected.

##### **4.1.1 Exacerbation**

#### **DURING VACANT PROPERTY USE**

The site is currently unoccupied, pending redevelopment. Personnel will be on-site to prepare the site for the future operations. Personnel will include contractors for asbestos abatement and demolition. No potential for contaminant exacerbation is expected during this vacancy period.

#### **PROPOSED COMMERCIAL DEVELOPMENT**

As part of the site redevelopment, earth work including excavation, backfill, and surface grading will be required. Appropriate soil erosion and exacerbation controls should be followed, as part of the permitting process and as part of due care. Soil erosion and exacerbation controls to be imposed during construction, landscaping, utility installation/repair, or other subsurface activities will include the following:

**Due to the presence of contamination exceeding cleanup criteria, use and handling of impacted soils will be restricted to prevent exacerbation.** Should subsurface soil become exposed, through excavation, grading, etc., appropriate action will be taken to prevent exacerbation. Including: (1) promptly returning impacted soil to the excavation, (2) removing the impacted soil to a proper disposal facility, and backfilling with clean fill material, (3) covering exposed soil with clean fill material, (4) properly managing soil through the use of erosion controls, etc. to prevent contaminated soil runoff, and/or (5) implement precautions to prevent track-off of soils to public right-of-ways and roadways. Wherever possible, excavated soil will be utilized beneath the proposed building as fill material. Excess soil will be disposed at



an appropriate, licensed facility. It is unknown if soils under the existing building are contaminated at this time.

**Imported backfill shall be certified as clean fill.** Backfill will be obtained from a certified source, and verified to be free of any contaminants which may pose a threat to public safety. If fill is determined to be unclean, it should be removed and disposed at a proper facility and replaced with clean fill. The development contractor(s) should maintain project files including source information and delivery tickets to document fill suitability.

**Although not anticipated, any abandoned containers (i.e. underground storage tanks (USTs), drums, pipelines, etc.) containing a hazardous substance that are discovered during subsurface activities will appropriately characterized and removed.** Activity nearby abandoned containers, particularly activities that could result in damage to the container or a possible release of the contents, will be halted until the container and the contents are evaluated and proper disposal and removal can be performed. Subsurface activities in the vicinity of the container(s) will not resume until the abandoned container(s) are properly removed.

**Precautionary measures will be utilized to eliminate the risk of erosion and runoff during construction activities.** Based on the final grading plan for the subject property, a detailed soil erosion control plan will be developed as part of the permitting process with local agencies. Typical controls, such as site grading to control runoff, storm water controls (diversions, filters, etc.), and erosion protection, will be included in the soil erosion control plan, to prevent contaminant migration through sedimentation, precipitation runoff and erosion.

Erosion controls (silt fencing or other barriers) will be utilized: (1) around the down gradient perimeter of the property, (2) around any areas where excavated soil is stockpiled or mounded, and (3) at storm sewer inlets or catch basins on or adjacent to the subject property. Additionally, stockpiled and mounded soil should be minimized at the subject property.

**Due to the potential for groundwater to be present during subsurface activities, proper groundwater management should be implemented during construction activities.**

Generally, all groundwater encountered should be left in place, or containerized, characterized and properly disposed in accordance with state and federal law. Groundwater should be isolated from surface water by implementing pumping procedures which contain the groundwater and discharge only to contained treatment systems, such as the municipal sanitary sewer or tanker trucks for disposal at an approved facility. The contractor must obtain permits from the local municipality to utilize the sanitary system for groundwater disposal. Groundwater may also be left in place and excavations subsequently backfilled, if there is no negative impact on construction methods. Because there is no way to delineate between groundwater in excavations and precipitation runoff collected in excavations, all pumped water will be handled in the same manner.

Any activities related to future construction, landscaping, and utility installation/repair will be conducted by the site owner, occupant, or authorized contractor, and the appropriate soil erosion and exacerbation controls will be followed.

The aforementioned development measures and on-going measures are designed in such a way that will prevent future releases to the subject property. These measures will also ensure that existing contamination is not exacerbated.

## **FUTURE SUBSURFACE ACTIVITIES**

Soil erosion and exacerbation controls to be imposed regarding any future construction, landscaping, utility installation/repair, or other subsurface activities will include the following:

**The proposed development plan includes small landscaped areas surrounding the building.** Any future subsurface disturbances would be limited to these landscaped areas. As part of the landscaping, clean fill material and topsoil will be imported to provide growing matrix for plantings. Impacted soil will be isolated from exposure and surface contact by vegetation and topsoil.

### **4.1.2 Due Care**

## **DURING VACANT PROPERTY USE**

The site is currently developed with floor slabs, asphalt or concrete pavement, gravel surface, and landscaping which provide isolation zones between the public and contaminated soil and/or groundwater.

**Due to the presence of contaminants at concentrations which exceed drinking water protection criteria and drinking water criteria, municipal water service will be maintained at the subject property.** The subject property is currently closed and unoccupied. Municipal water service is available if needed. No alteration to the subject property subsurface conditions or utilities will occur during the vacancy period. Based on contamination identified and current property conditions, no exposures are expected during the vacancy period.

## **PROPOSED COMMERCIAL DEVELOPMENT**

**During construction activities, when impacted soils become exposed through excavation, grading, etc., appropriate action will be taken to prevent an unacceptable risk to the public health.** Actions may include: (1) promptly returning impacted soil to the excavation, (2) removing the impacted soil to a proper disposal facility, and backfilling with clean fill material, (3) covering exposed soil with clean fill material, (4) properly managing soil through the use of erosion controls, etc. to prevent contaminated soil runoff, and/or (5) implement precautions to prevent track-off of soils to public right-of-ways and roadways. Unless proper characterization is conducted, excavated soil should not be relocated to non-impacted portions of the subject property or another parcel. Any open excavations will be fenced to keep unauthorized people from entering work zone(s).



During construction of the new building, contaminated material will be relocated beneath the structure or removed to a disposal facility. The location of contaminated material in combination with floor slabs, pavement, and landscaping are believed sufficient to prevent the reasonably foreseeable acts and omissions of a third party.

**Precautions should be taken to ensure that impacted soil and groundwater are separated from the public.** A fence surrounding the excavation will be constructed to prevent unauthorized access to work area(s).

**Excavation activities shall be conducted under a Health and Safety Plan (HASP).** Any contractors working with materials containing potentially hazardous substances will prepare a HASP, which will include, at a minimum, emergency contact numbers, hospital locations, personal protective equipment (i.e., gloves, boots, coveralls, etc.), and decontamination procedures. HASPs prepared for this work will be read and signed by all workers assigned to the project. The property owner or representative will review the contractors' HASP to determine if adequate understanding and protective measures will be implemented throughout the work, to protect workers and the public from accidental exposure to contamination.

**Due to the potential for groundwater to be present during subsurface activities, proper groundwater management should be implemented during construction activities.**

Generally, all groundwater encountered should be left in place, or containerized, characterized and properly disposed in accordance with state and federal law. Groundwater should be isolated from surface water by implementing pumping procedures which contain the groundwater and discharge only to contained treatment systems, such as the municipal sanitary sewer or tanker trucks for disposal at an approved facility. Water pumping for the purposes of dewatering excavations in impacted areas will be conducted in accordance with applicable rules and regulations. Groundwater may also be left in place and excavations subsequently backfilled, if there is no negative impact on construction methods. Because there is no way to delineate between groundwater in excavations and precipitation runoff collected in excavations, all pumped water will be handled in the same manner. It is permissible to leave encountered groundwater or storm water in place, and backfill excavations. It is not permissible to pump groundwater, accumulated rainwater, or surface water to storm or sanitary sewers without proper permits and monitoring required by the local municipality. It is also not permissible to pump groundwater onto the ground surface of the subject property. Groundwater and impacted surface water is not to be discharged from the property in any manner other than described herein or as approved by local, state, and federal authorities.

**Drinking water protection and groundwater isolation will be achieved during construction by continuation of the municipal water source service for all potable water needs.**

Maintaining the municipal water service will ensure that groundwater above the drinking water criteria levels will not be consumed or contacted by the public. Groundwater wells will not be installed for any purpose at the subject property, other than for environmental assessment activities. Groundwater will not be utilized for construction purposes or as potable water.



Due to the potential for groundwater to be present during subsurface activities, proper groundwater management should be implemented during construction activities. Generally, all groundwater encountered should be left in place, or containerized, characterized and properly disposed in accordance with state and federal law. Groundwater should be isolated from surface water by implementing pumping procedures which contain the groundwater and discharge only to contained treatment systems, such as the municipal sanitary sewer or tanker trucks for disposal at an approved facility. The contractor must obtain permits from the local municipality to utilize the sanitary system for groundwater disposal. Groundwater may also be left in place and excavations subsequently backfilled, if there is no negative impact on construction methods. Because there is no way to delineate between groundwater in excavations and precipitation runoff collected in excavations, all pumped water will be handled in the same manner.

**Hazardous substances and petroleum products will not be stored on the subject property in quantities considered significant.** This includes fuel above ground storage tanks (ASTs) for equipment being utilized on the subject property.

The proposed building footprint will cover the majority of the property. **The development plan is designed in such a way that concrete pavement, floor slabs, and landscaped/vegetative areas will eliminate the risk of human contact with site contamination.** Any subsurface water collection systems, footing drains, sumps, etc. that may accumulate impacted groundwater will be enclosed and isolated from public areas. These measures will increase the safety of the on-site personnel and ensure that no exposure pathway is opened by ingestion, inhalation, or absorption through contact with impacted soil or groundwater.

## **FUTURE SUBSURFACE ACTIVITIES**

The proposed building footprint will cover the majority of the property. Any future construction work would require demolition or removal of all or portions of the proposed new building. If construction, landscaping, utility installation/repair, or other subsurface activities do occur, however, Due Care controls should be imposed, including the following:

**Due to the presence of contamination, impacted groundwater and soils will be isolated from the public.** This will be achieved principally by providing potable water from an imported source. Groundwater wells will be prohibited, even for non-potable purposes, except for environmental assessment activities. The imported source of potable water may include connection to municipal water sources at the property, bottled water service, or large-container water source (tanker truck, etc.).

**Pumped groundwater will be contained and removed in accordance with approved methods,** either by containerizing and disposing or by pumping to the municipal sewage system (not the storm water sewer).

**Future excavation activities will be conducted under a Health and Safety Plan (HASP).**

Any contractors working with materials containing potentially hazardous substances will prepare a HASP, which will include, at a minimum, emergency contact numbers, hospital locations, personal protective equipment (i.e., gloves, boots, coveralls, etc.), and decontamination procedures. HASPs prepared for this work will be read and signed by all workers assigned to the project. The property owner or representative will review the contractors' HASP to determine if adequate understanding and protective measures will be implemented throughout the work, to protect workers and the public from accidental exposure to contamination.

**During construction activities, when impacted soils become exposed through excavation, grading, etc., appropriate action will be taken to prevent an unacceptable risk to the public health.** Including: (1) promptly returning impacted soil to the excavation, (2) removing the impacted soil to a proper disposal facility, and backfilling with clean fill material, and/or (3) properly managing soil through the use of erosion controls, etc. to prevent contaminated soil runoff. Any open excavations will be fenced to keep unauthorized people from entering work zone(s).

#### **4.1.3 Reasonable Precautions**

##### **VACANT PROPERTY**

The property is gated and locked. In addition, the contamination is located at depth, and site conditions including asphalt, concrete and gravel paved areas, and floor slabs are believed sufficient to prevent the reasonably foreseeable acts and omissions of a third party during the vacancy period.

##### **PROPOSED COMMERCIAL DEVELOPMENT**

**The property owner will notify all on-site contractors of the presence of contaminants at concentrations, which exceed Part 201 Generic Residential Cleanup Criteria.** The contractors should be provided with a Disclosure Statement, outlining soil and groundwater handling requirements. Specifically, contractors should be: (1) made aware of known locations of contamination, (2) prohibited from utilizing groundwater for any purpose, including non-potable uses, and (3) groundwater, where encountered, will be handled in accordance with specific guidelines. Contractors should also be required to post "no trespassing" signs and/or fencing to restrict the public from entering the work areas. Open excavations should be fenced to prevent access by unauthorized personnel. In addition, the contractor(s) should be required to implement control measures to prevent off-site migration of impacted soil and groundwater, including soil erosion control measures described earlier.

**The property owner will employ knowledgeable personnel to provide monitoring of site conditions.** On-site knowledgeable personnel would ensure that due care procedures are followed.



## **FUTURE SUBSURFACE ACTIVITIES**

**Due to the presence of contamination, excavation on the property will be restricted except for the purpose of construction, landscaping, or utility installation/repair.** All activities related to construction, landscaping, and utility installation/repair will be conducted by the site owner or authorized contractor.

**The property owner will employ knowledgeable personnel to provide maintenance and monitoring of site conditions.** On-site knowledgeable personnel will ensure that any contractors conducting utility repair will sign the Contractors Disclosure Statement, which states that the site is contaminated and describes proper soil and groundwater handling procedures. The site manager will also monitor on-site operations and prevent subsurface activities unless procedures described within this report are followed.

**The property owner will notify all on-site contractors of the presence of contaminants at concentrations, which exceed Part 201 Generic Residential Cleanup Criteria.** The contractors will be provided with a Disclosure Statement (discussed in Section 5.0), which outlines soil and groundwater handling requirements. Specifically, contractors will be: (1) made aware of known locations of contamination, (2) prohibited from utilizing groundwater for any purpose, including non-potable uses, and (3) groundwater, where encountered, will be handled in accordance with specific guidelines. Contractors will also be required to post “no trespassing” signs and/or fencing to restrict the public from entering the work areas. Open excavations will be fenced to prevent access by unauthorized personnel. In addition, the contractor(s) will be required to implement control measures to prevent off-site migration of impacted soil and groundwater, including soil erosion control measures described earlier.

## **5.0 DISCLOSURE**

Elle Enterprises, L.L.C. will be the primary administrator of this report for the subject property. Elle Enterprises, L.L.C. will disclose the contents of this report to any contractors or relevant third parties. AKT Peerless also recommends that Elle Enterprises, L.L.C. require that subcontractors or third parties performing work at the subject property sign a Disclosure Statement prior to commencing work.

Elle Enterprises, L.L.C. will notify contractors of the groundwater and soil with contamination levels above Generic Cleanup Criteria. The disclosure will include the contaminant identification, level of impact, and precautionary methods for interaction with the impacted soil and groundwater. Providing a copy of this report for review should be sufficient to communicate the above.

Attached as Appendix B is sample Contractor Disclosure Statement. The statement provides the notices describe above regarding the presence of contamination, handling procedures, and prohibited activities at the property.

Elle Enterprises, L.L.C. will notify future personnel at the subject property of the environmental condition of the site. The notification will be provided to inform future personnel of the site conditions, ensure they do not exacerbate site conditions, or cause an exposure to contaminants. The notification will be verbal or written and a copy of this due care plan will be made available for review by on-site personnel.

Revision to the disclosure statements will be made if necessary upon changes to property conditions and/or development plans.

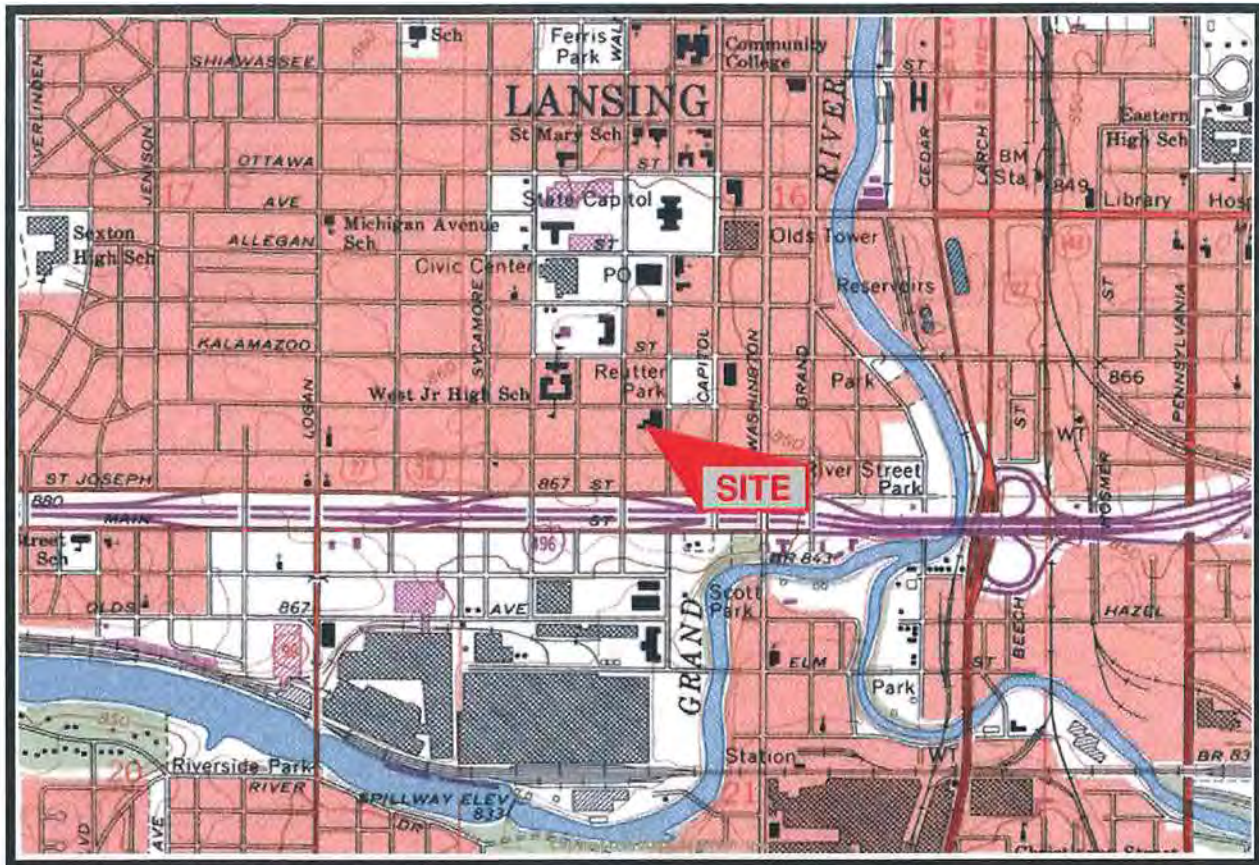
## **FIGURES**



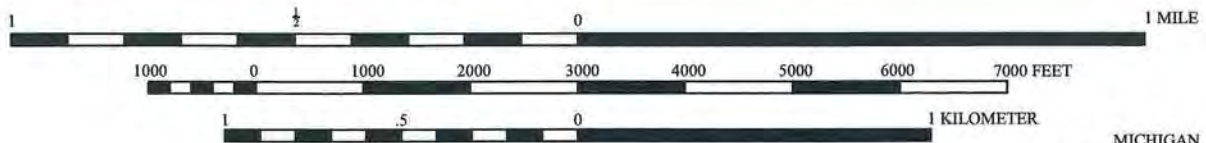
# LANSING SOUTH QUADRANGLE

MICHIGAN - INGHAM COUNTY

7.5 MINUTE SERIES (TOPOGRAPHIC)



T.4 N. - R.2 W.



CONTOUR INTERVAL 10 FEET  
DATUM IS MEAN SEA LEVEL



IMAGE TAKEN FROM 1965 U.S.G.S. TOPOGRAPHIC MAP  
PHOTOREVISED 1973

**AKTPEERLESS**  
environmental services  
FARMINGTON DETROIT SAGINAW LANSING  
WWW.AKTPEERLESS.COM

## TOPOGRAPHIC LOCATION MAP

ELLE ENTERPRISES LLC  
FORMER YMCA  
301 WEST LENAWEE STREET  
CITY OF LANSING, MICHIGAN  
PROJECT NUMBER : 5700L-6-27

DRAWN BY: jeb  
DATE: 2-22-08

FIGURE 1







Townsend Street

W. Lenawee Street

Former Gasoline Station (1939-1970)

South Walnut Street

Savory Court

B-3 (13.5-14.5')	
ANALYTE	2.18.08
CHROMIUM	10,000
MERCURY	ND
SELENIUM	ND
SILVER	ND
2-METHYLNAPHTHALENE	74,000
METHYLNAPHTHALENE	4,900

B-2 (3.5-4.0')	
ANALYTE	2.18.08
CHROMIUM	10,000
MERCURY	ND
SELENIUM	ND
SILVER	ND
2-METHYLNAPHTHALENE	ND
METHYLNAPHTHALENE	ND

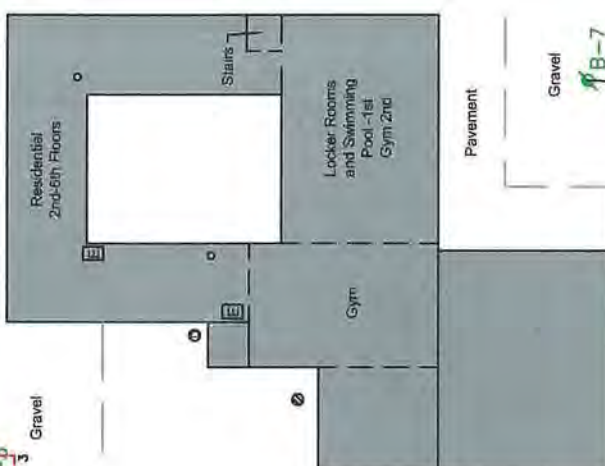
B-1-WS	
ANALYTE	2.18.08
CHROMIUM	17
LEAD	240
MERCURY	0.38
SILVER	1.1

B-4 (2.0-3.0')	
ANALYTE	2.18.08
CHROMIUM	14,000
MERCURY	150
SELENIUM	ND
SILVER	ND
2-METHYLNAPHTHALENE	ND
METHYLNAPHTHALENE	ND

B-5 (4.0-5.0')	
ANALYTE	2.18.08
CHROMIUM	13,000
MERCURY	10
SELENIUM	ND
SILVER	140
2-METHYLNAPHTHALENE	ND
METHYLNAPHTHALENE	ND

B-8 (3.0-4.0')	
ANALYTE	2.18.08
CHROMIUM	14,000
MERCURY	ND
SELENIUM	ND
SILVER	ND
2-METHYLNAPHTHALENE	ND
METHYLNAPHTHALENE	ND

B-7 (4.0-5.0')	
ANALYTE	2.18.08
CHROMIUM	13,000
MERCURY	ND
SELENIUM	ND
SILVER	ND
2-METHYLNAPHTHALENE	ND
METHYLNAPHTHALENE	ND



NT = NOT TESTED FOR THIS ANALYTE  
ND = ANALYTE NOT FOUND ABOVE TARGET DETECTION LIMIT

- LEGEND
- PROPERTY LINE
  - - - GEOPHYSICAL ANOMALY
  - SOIL BORING LOCATION
  - SOIL BORING LOCATION W/ TEMP. MONITORING WELL

SITE MAP w/ ANALYTICAL RESULTS  
EXCEEDING GENERIC CLEANUP CRITERIA  
ELLE ENTERPRISES LLC  
FORMER YMCA  
301 WEST LENAWEE STREET  
CITY OF LANSING, MICHIGAN  
PROJECT NUMBER : 5700L-6-27

**AKTPEERLESS**  
environmental services  
FARMINGTON DETROIT SAGINAW LANSING  
WWW.AKTPEERLESS.COM

DRAWN BY: job  
DATE: 2-15-08



FIGURE 3

## TABLES



Table 2  
Summary of Groundwater Analytical Results  
Former YMCA  
301 W. Lenawee Street  
Lansing, Michigan  
AKT Peerless Project Number  
5700L2-3-01 and 5700L2-3-20

Sample Identification and Date		CAS#	Residential & Commercial I. Drinking Water Criteria & RBSLs	Groundwater Surface Water Interface Criteria & RBSLs	Residential & Commercial I. Groundwater Volatilization to Indoor Air Inhalation Criteria & RBSLs	Groundwater Contact Criteria & RBSLs	Water Solubility	R-1/TMW (B-1-WS) 2/18/2008	R-1/TMW (B-1-WS) FD 2/18/2008
<b>Analytes</b>									
<b>Volatile Organic Compounds (VOCs) (ug/L)</b>									
Benzene (I)		71432	5.0 (A)	200 (X)	5,600	11,000	1,75E+6	<1.0	<1.0
1,2-Dichloroethane (I)		107062	5.0 (A)	360 (X)	9,600	19,000	8.52E+6	<1.0	<1.0
Ethylbenzene (I)		100414	74 (E)	18	1.1E+5	1.7E+3 (S)	1.69E+5	<1.0	<1.0
Ethylene dibromide		106934	0.05 (A)	0.2 (X)	2,400	25	4.20E+6	<1.0	<1.0
2-Methylthiophene		91576	260	ID	ID	25,000 (S)	24,600	<5.0	<5.0
Methyl-tert-butyl ether (MTBE)		1634044	40 (E)	730 (X)	4,7E+7 (S)	6.1E+5	4.68E+7	<5.0	<5.0
Naphthalene		91203	520	13	31,000 (S)	31,000 (S)	<5.0	<5.0	<5.0
Toluene (I)		108883	790 (E)	140	5.3E+5 (S)	5.3E+5 (S)	5.20E+5	<1.0	<1.0
1,2,4-Trimethylbenzene (I)		95636	63 (E)	17	56,000 (S)	56,000 (S)	55,890	<1.0	<1.0
1,3,5-Trimethylbenzene (I)		108678	72 (E)	45	61,000 (S)	61,000 (S)	61,150	<1.0	<1.0
Xylenes (I)		133007	280 (E)	35	1.9E+5 (S)	1.9E+5 (S)	1.86E+5	<3.0	<3.0
Remaining VOCs		Various	-	-	-	-	-	NT	NT
<b>Ethylene glycol (ug/L)</b>									
Ethylene glycol		107211	15,000	1.9E+5 (X)	NLV	1.0E+9 (S)	1.0E+9	<10,000	<10,000
<b>Polynuclear Aromatic Hydrocarbons (PNAs) (ug/L)</b>									
Benz(a,b)pyrene		191242	1.0 (M); 0.26 (S)	NA	NLV	1.0 (M); 0.26 (S)	0.26	NT	NT
Benzo(k)fluoranthene (Q)		207889	1.0 (M); 0.8 (S)	NA	NLV	1.0 (M); 0.8 (S)	0.8	NT	NT
Indene(1,2,3-cd)pyrene (Q)		193395	2.0 (M); 0.022 (S)	ID	NLV	2.0 (M); 0.022 (S)	0.022	NT	NT
2-Methylthiophene		91576	260	ID	ID	25,000 (S)	24,600	<5.0	<5.0
Remaining PNAs		Various	-	-	-	-	-	NT	NT
<b>Total Metals Analysis (ug/L)</b>									
Arsenic		7440382	10 (A)	150 (X)	NLV	4,300	NA	NT	6.3
Barium (B)		7440393	2,000 (A)	(G,X)	NLV	1.4E+7	NA	NT	420
Cadmium (B)		7440339	5.0 (A)	(G,X)	NLV	1.9E+5	NA	NT	<1.0
Chromium (VI)		18540299	100 (A)	11	NLV	4.6E+5	NA	NT	17
Copper (B)		7440508	1,000 (E)	(G)	NLV	7.4E+6	NA	NT	20
Lead (B)		7439921	3.0 (B)	(G,X)	NLV	ID	NA	250	240
Mercury (Total) (B, Z)		Varies	2.0 (A)	0.0013	56 (S)	56 (S)	56	NT	0.38
Selenium (B)		7782492	50 (A)	5.0	NLV	9.7E+5	NA	NT	<5.0
Silver (B)		7440224	34	0.2 (M); 0.006	NLV	1.5E+6	NA	NT	1.1
Zinc (B)		7440666	2,400	(G)	NLV	1.1E+8	NA	NT	160

Notes: A - Criterion is the state of Michigan drinking water standard established pursuant to section 5 of 1976 PA 399, MCL 325.1005.

B - Background, as defined in R 309.570(b), may be substituted if higher than the calculated cleanup criterion.

E - Criterion is the aesthetic drinking water value, as required by section 201.20(5) of the act.

G - Groundwater surface water interface (GSI) criterion depends on the pH or water hardness, or both, of the receiving surface water.

I - Hazardous substance may exhibit the characteristic of ignitability as defined in 40 C.F.R. Section 361.21 (revised as of July 1, 2001), which is adopted by reference in these rules and which is available for inspection.

L - Criteria for lead are derived using a biologically-based model, as allowed for under section 201.20(10) of the act, and are not calculated using the algorithm and assumptions specified in pathway-specific rules.

M - Calculated criterion is below the analytical target detection limit, therefore, the criterion defaults to the target detection limit.

Q - Criteria for emerging polycyclic aromatic hydrocarbons were developed using relative potential persistence to benz(a)pyrene.

S - Criterion defaults to the hazardous substance-specific water solubility limit.

X - The groundwater surface water interface (GSI) criterion shown in the generic cleanup criteria tables is not protective for surface water that is used as a drinking water source.

Z - Mercury is typically measured as total mercury.

AA - Comparison to these criteria may take into account an evaluation of whether the hazardous substances are absorbed to particulates rather than dissolved in water and whether filtered groundwater samples were used to evaluate groundwater.

ID - Insufficient data to develop criterion.

NA - Criterion or value is not available or, in the case of background and chemical threat service numbers, not applicable.

NT - Hazardous substance is not likely to volatilize under most conditions.

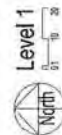
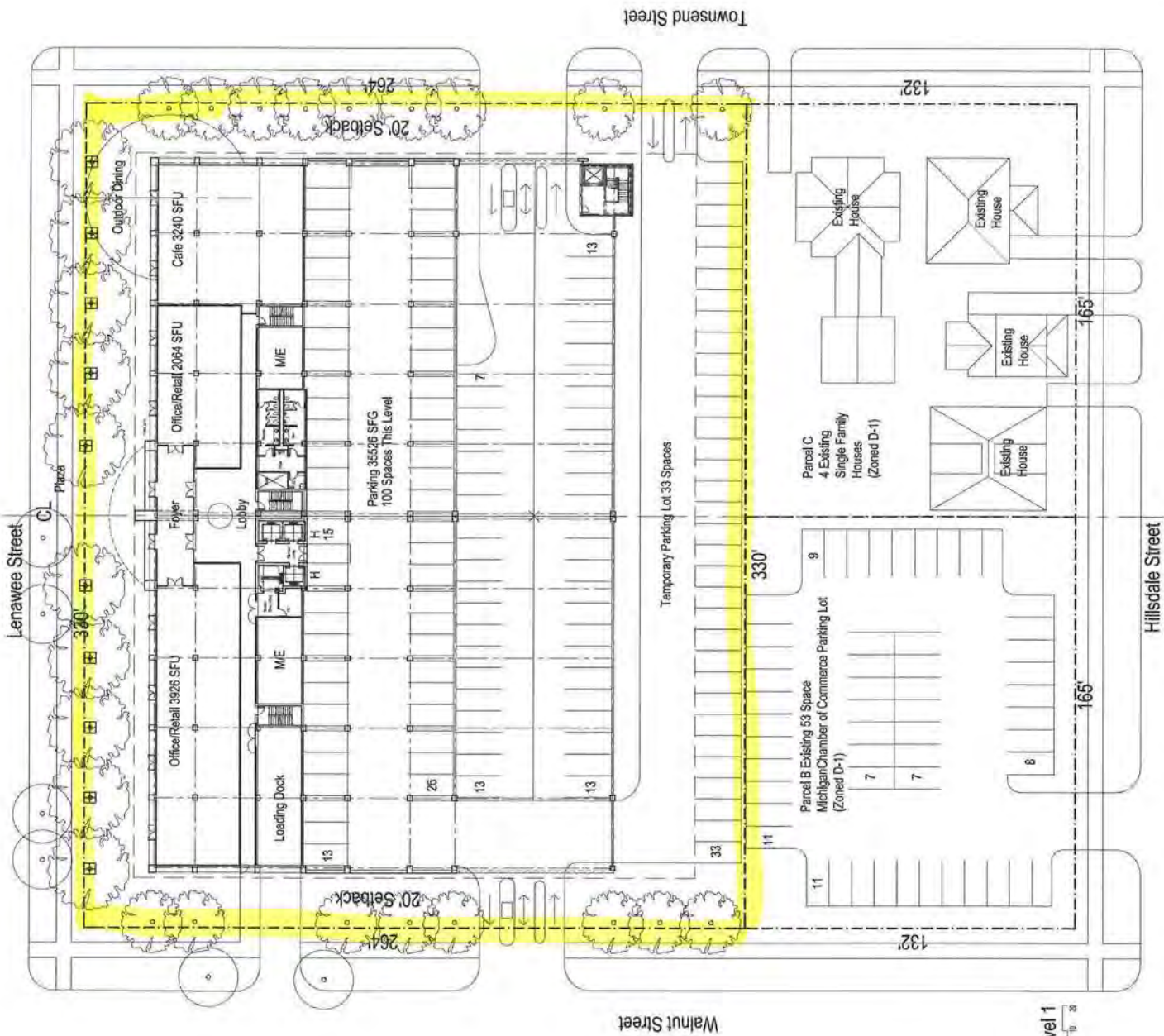
NT - Not tested.



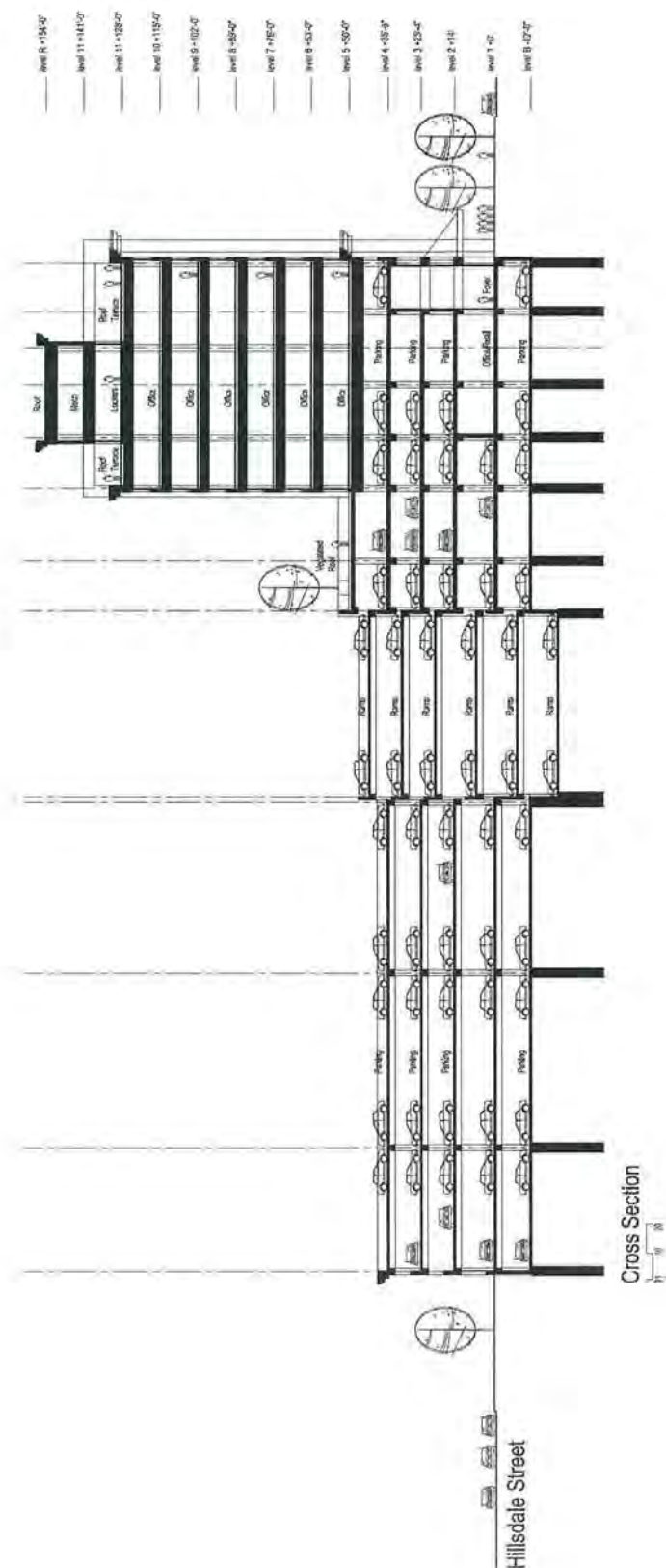
**APPENDIX A**  
**PROPOSED REUSE PLANS**

# Summary Scheme 4a1

USE	AREA	PERCENT	TOTAL
OFFICE	11,100	11.1%	11,100
RETAIL	11,100	11.1%	11,100
LOBBY	1,100	1.1%	1,100
PARKING	1,100	1.1%	1,100
OUTDOOR DINING	1,100	1.1%	1,100
LOADING DOCK	1,100	1.1%	1,100
M/E	1,100	1.1%	1,100
STAIRS	1,100	1.1%	1,100
MECHANICAL	1,100	1.1%	1,100
LANDSCAPE	1,100	1.1%	1,100
ROADWAY	1,100	1.1%	1,100
UTILITIES	1,100	1.1%	1,100
OTHER	1,100	1.1%	1,100
<b>TOTAL</b>	<b>100,000</b>	<b>100%</b>	<b>100,000</b>



Level 1



**APPENDIX B**  
**CONTRACTOR DISCLOSURE STATEMENT**



## CONTRACTOR DISCLOSURE STATEMENT

**2101 WEST WILLOW STREET  
LANSING, MICHIGAN**

Contamination is present in soil and groundwater at this site, at concentrations exceeding the Michigan Department of Environmental Quality (MDEQ), Generic Cleanup Criteria developed under the authority of Part 201 of the Natural Resources and Environmental Protection Act (NREPA), P.A. 451 of 1994, as amended. Subsurface Investigations conducted by AKT Peerless Environmental Services, among others in 2007 identified several exceedances at various locations throughout the property. The exceedances and locations are described in detail within the Section 7a Compliance Analysis, available for review from the property owner.

Complete delineation of all on-site impacts has not been conducted. As part of the due care obligation under Section 20107a, the following measures shall be followed during site activities:

**Precautions should be taken to ensure that impacted soil and groundwater are separated from the public.** A fence surrounding the excavation will be constructed to prevent unauthorized access to work area(s).

**Should subsurface soil become exposed, through excavation, grading, etc., appropriate action will be taken to prevent an unacceptable risk to the public health.** Including: (1) promptly returning impacted soil to the excavation, (2) removing the impacted soil to a proper disposal facility, and backfilling with clean fill material, (3) covering exposed soil with clean fill material, (4) properly managing soil through the use of erosion controls, etc. to prevent contaminated soil runoff, and/or (5) implement precautions to prevent track-off of soils to public right of ways and roadways.

**Promptly fill excavations, below grade areas or voids from demolition or construction activities to ensure water does not collect within the area.** If excavations remain open and groundwater accumulates, all groundwater will be handled as described below. Surface water accumulation in an excavation will be handled in the same manner as contaminated groundwater.

**Due to the potential for groundwater to be present during subsurface activities, proper groundwater management should be implemented during construction activities.**

Generally, all groundwater encountered should be left in place, or containerized, characterized and properly disposed in accordance with state and federal law. Groundwater should be isolated from surface water by implementing pumping procedures which contain the groundwater and discharge only to contained treatment systems, such as the municipal sanitary sewer or tanker trucks for disposal at an approved facility. Water pumping for the purposes of dewatering excavations in impacted areas will be conducted in accordance with applicable rules and



regulations. Groundwater may also be left in place and excavations subsequently backfilled, if there is no negative impact on construction methods. Because there is no way to delineate between groundwater in excavations and precipitation runoff collected in excavations, all pumped water will be handled in the same manner. It is permissible to leave encountered groundwater or storm water in place, and backfill excavations. It is not permissible to pump groundwater, accumulated rainwater, or surface water to storm or sanitary sewers without proper permits and monitoring required by the local municipality. It is also not permissible to pump groundwater onto the ground surface of the subject property. Groundwater and impacted surface water is not to be discharged from the property in any manner other than described herein or as approved by local, state, and federal authorities.

**Drinking water protection and groundwater isolation will be achieved during construction by continuation of the municipal water source service for all potable water needs.**

Maintaining the municipal water service will ensure that groundwater above the drinking water criteria levels will not be consumed or contacted by the public. Groundwater wells will not be installed for any purpose at the subject property, other than for environmental assessment activities. Groundwater will not be utilized for construction purposes or as potable water.

**Importation of fill material other than clean backfill from a gravel/sand yard is prohibited.**

Importation of fill material from another property is prohibited until the fill materials have been characterized and deemed appropriate for use on site.

**All soil that is not re-used on site, beneath future buildings, landscaped areas, and/or pavement will be disposed at an approved landfill.** In no instance is soil to be transported off-site other than to an appropriate landfill. Contractor is responsible for waste characterization and obtaining authorization to dump.

**Excavation activities shall be conducted under a Health and Safety Plan (HASP).** Any contractors working with materials containing potentially hazardous substances will prepare a HASP, which will include, at a minimum, emergency contact numbers, hospital locations, personal protective equipment (i.e., gloves, boots, coveralls, etc.), and decontamination procedures. HASPs prepared for this work will be read and signed by all workers assigned to the project. The property owner or representative will review the contractors' HASP to determine if adequate understanding and protective measures will be implemented throughout the work, to protect workers and the public from accidental exposure to contamination.

**Excavation on the property should be restricted except for the purpose of construction, landscaping, or utility installation/repair by persons authorized by the property owner.**

**Hazardous substances and petroleum products will not be stored on the subject property in quantities considered significant.** This includes fuel above ground storage tanks (ASTs) for equipment being utilized on the subject property.

**Any buried containers (i.e. underground storage tanks (USTs), drums, pipelines, etc.) that are discovered during construction will be appropriately characterized and removed.** Any abandoned containers that are discovered will not be disturbed. Any construction activities that could result in damage to buried containers will be immediately ceased. Construction activities in the vicinity of the abandoned container will not resume until the abandoned container(s) is properly removed.

**Precautions to prevent the reasonably foreseeable acts or omissions of a third party will be implemented.** Contractors will be required to post "no trespassing" signs and/or fencing to prohibit the public from entering the subject property. Open excavations will be fenced to prevent access by unauthorized personnel. Subcontractors will not be brought onto the property without authorization of the property owner and completion of this disclosure statement.

I have read and understand this Disclosure Statement.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Company

\_\_\_\_\_  
Date

## **Appendix I**

### **HUD Noise Assessment**



HUD > Program Offices > Community Planning and Development > Environment > DNL Calculator

## Site DNL Calculator

For more information on using the noise calculator, to access the user guidebook, or send comments, please visit the following page:

[Day/Night Noise Level Electronic Assessment Tool](#)

Guidelines:

- To display the Road and/or Rail DNL calculator(s), click on the "Add Road Source" and/or "Add Rail Source" button(s) below.
- All Road and Rail input values must be positive non-decimal numbers.
- All Road and/or Rail DNL value(s) must be calculated separately before calculating the Site DNL.
- All checkboxes that apply must be checked for vehicles and trains in the tables' headers.
- **Note #1:** Tooltips, containing field specific information, have been added in this tool and may be accessed by hovering over all the respective data fields (site identification, roadway and railway assessment, DNL calculation results, roadway and railway input variables) with the mouse.
- **Note #2:** DNL Calculator assumes roadway data is always entered.

Site ID   
 Record Date   
 User's Name

Road # 1 Name:

Road #1			
Vehicle Type	Cars <input checked="" type="checkbox"/>	Medium Trucks <input checked="" type="checkbox"/>	Heavy Trucks <input checked="" type="checkbox"/>
Effective Distance	<input type="text" value="746"/>	<input type="text" value="746"/>	<input type="text" value="746"/>
Distance to Stop Sign	<input type="text"/>	<input type="text"/>	<input type="text"/>
Average Speed	<input type="text" value="70"/>	<input type="text" value="60"/>	<input type="text" value="60"/>
Average Daily Trips (ADT)	<input type="text" value="51600"/>	<input type="text" value="1439"/>	<input type="text" value="1439"/>
Night Fraction of ADT	<input type="text" value="15"/>	<input type="text" value="15"/>	<input type="text" value="15"/>
Road Gradient (%)	<input type="text"/>	<input type="text"/>	<input type="text" value="0"/>
<b>Vehicle DNL</b>	<b>59.8481</b>	<b>42.9632</b>	<b>58.8645</b>
Calculate Road #1 DNL	<input type="text" value="62.3563"/>	Reset	<input type="text"/>

Airport Noise Level

Loud Impulse Sounds? ☐ Yes ☒ No

Combined DNL for all  
Road and Rail sources

Combined DNL including Airport

Site DNL with Loud Impulse Sound

## Mitigation Options

If your site DNL is in Excess of 65 decibels, your options are:

- **No Action Alternative**  
Cancel the project at this location [DNL Calculator](#)
- **Other Reasonable Alternatives**  
Choose an alternate site [DNL Calculator](#)
- **Mitigation**
  - **Contact your Field or Regional Environmental Officer**  
- [Environmental Contacts](#)
  - **Increase mitigation in the building walls** (only effective if no outdoor, noise sensitive areas).
  - **Reconfigure the site plan to increase the distance between the noise source and noise-sensitive uses**  
[DNL Calculator](#)
  - **Incorporate natural or man-made barriers.** See [The Noise Guidebook](#)
  - **Construct noise barrier.** See the [Barrier Performance Module](#)

## **Appendix J**

### **Environmental MAP Certification**

**ENVIRONMENTAL CERTIFICATION**  
**For**  
**Park Place / Y-Site Redevelopment**  
**301 West Lenawee and 524 and 526 Townsend Street**  
**Lansing, Michigan**

**Section: 25**

**Submission: Phase I Environmental Site Assessment**

**FHA Number:**

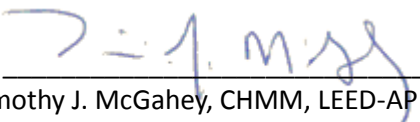
I understand that my Environmental Review will be used by Prudential Huntoon Paige to document to the U.S. Department of Housing and Urban Development that the MAP Lender's application for FHA multifamily mortgage insurance was prepared and reviewed in accordance with HUD MAP requirements. I certify that my review was in accordance with the HUD MAP requirements applicable on the date of my review and that I have no financial interest or family relationship with the officers, directors, stockholders, or partners of the Borrower, the general contractor, any subcontractors, the buyer or seller of the proposed property or the architect, or engage in any business that might present a conflict of interest.

I have been employed or under contract for this specific assignment (Environmental Review) and I have no other side deals, agreements, or financial considerations with the MAP Lender or others in connection with this transaction.

Name of Company: AKT Peerless

Date: June 30, 2014

By

  
Timothy J. McGahey, CHMM, LEED-AP  
Regional Manager of Southeast Michigan

**Warning:** Title 19 U.S. C. 1001, provides in part that whoever knowingly and willfully makes or uses a document containing any false, fictitious, or fraudulent statement or entry, in any manner in the jurisdiction of any department or agency of the United States, shall be fined not more than \$10,000 or imprisoned for not more than five years or both.

## **Appendix K**

### **SHPO Response to Section 106 Application**



RICK SNYDER  
GOVERNOR

STATE OF MICHIGAN  
MICHIGAN STATE HOUSING DEVELOPMENT AUTHORITY  
STATE HISTORIC PRESERVATION OFFICE

SCOTT WOOSLEY  
EXECUTIVE DIRECTOR

May 30, 2014

CARMEN REVERON  
US DEPT OF HOUSING AND URBAN DEVELOPMENT  
DETROIT FIELD OFFICE  
MCNAMARA FEDERAL BUILDING  
477 MICHIGAN AVENUE  
DETROIT MI 48226

RE: ER-96-127.14.301 W LENAWE

301 West Lenawee Street Redevelopment Project,  
Lansing, Ingham County (HUD)

Dear Ms. Reveron:

Under the authority of Section 106 of the National Historic Preservation Act of 1966, as amended, we have reviewed ~~the proposed undertaking at the above-noted location. Based on the information provided for our review, it is the~~ opinion of the State Historic Preservation Officer (SHPO) that the proposed undertaking will have an adverse effect on 301 West Lenawee Street located in the Downtown Lansing Historic District which is listed in the National Register of Historic Places.

This undertaking meets the criteria of adverse effect because: *the undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association,* 36 CFR § 800.5(a)(1). Specifically, the undertakings will result in physical destruction of or damage to all or part of the property.

Federal agencies are required to avoid, minimize, or mitigate adverse effects. Please note that if the federal agency and the SHPO concur that the adverse effect cannot be avoided, the Section 106 process will not conclude until the consultation process is complete, an MOA is developed, executed, and implemented, and, if applicable, the formal comments of the Advisory Council have been received, 36 CFR § 800.6. For more information on your responsibilities and obligations for projects that will have an adverse effect on historic properties under 36 CFR § 800.6, please review the enclosed materials.

The opinion of the SHPO is based on the materials provided for our review. If you believe that there is material that we should consider that might affect our finding, or if you have questions, please contact Martha MacFarlane-Faes, Deputy State Historic Preservation Officer, at (517) 335-2720 or by email at [FaesM@michigan.gov](mailto:FaesM@michigan.gov). Please reference our project number in all communication with this office regarding this undertaking.

Finally, the State Historic Preservation Office is not the office of record for this undertaking. You are therefore asked to maintain a copy of this letter with your environmental review record for this undertaking. Thank you for this opportunity to review and comment, and for your cooperation.

Sincerely

Brian D. Conway  
State Historic Preservation Officer

BDC:JCF

Enclosures

copy: Advisory Council on Historic Preservation  
Bill Rieske, City of Lansing  
Jennifer Vega, Prudential Huntoon Paige Associates  
Steve Luzkow, AKT Peerless





## Section 106 Case Studies \*\*

Guidance provided by the  
State Historic Preservation Office (SHPO) of Michigan

### Definition

A case study is a document that outlines a federal agency's efforts to develop and evaluate alternatives or modifications to a project that could avoid or minimize adverse effects to cultural resources. The case study provides a record of an agency's due diligence to carefully consider the impacts of its actions upon cultural resources. The document may also reveal previously unidentified but feasible alternatives that will avoid impacts altogether.

### Scope

A case study should identify and evaluate alternatives to avoid an adverse effect, including the "no build" alternative. The case study should provide sufficient data and supporting arguments to demonstrate to the cold reader why a particular alternative is or is not feasible. The case study should start from the premise that a problem needs to be solved (e.g. high density traffic) rather than argue for a specific project (e.g. a new road). Data should not be manipulated to support a predetermined outcome. Rather, the best alternative or set of alternatives should arise from the data itself.

When considering alternatives, it is important to remember the role of the SHPO in reviewing the case study. The SHPO is a mandatory consulting party in Section 106 consultation, per the National Historic Preservation Act of 1966, as amended. The SHPO also has a broader role in Michigan to identify, evaluate, register, interpret and protect the state's cultural resources. Therefore, while the SHPO must take many factors into account in reviewing the case study, the welfare of the resource is always foremost. Even if the outcome is still adverse, the most successful and convincing case studies will give exhaustive consideration, within reasonable limits, to the welfare of cultural resources.

The types of data to include in the case study will vary according to project, agency and context, but may include the following:

- statutes, regulations or agency policies that may affect a particular alternative;
- agency financial information;
- demographic or geographic information;
- traffic or visitor counts;
- structural and engineering reports;
- cost analyses

In general, if the case study argues for or against a particular alternative, then all of the factors involved in that decision should be explained in some detail with supporting facts. If, for example, the case study claims that rehabilitation of a historic building is cost-prohibitive to your agency and the study argues for demolition, then the case study must provide a professional assessment of building's condition and a cost analysis of rehabilitation vs. demolition and new construction. An argument is only as credible as its source. Therefore, qualified professionals in a particular relevant field (e.g. a historic preservation architect in the case of historic building

rehabilitation) should provide such information and those professionals should be identified in the case study.

Among the alternatives considered, one should always be the "do nothing" or "no build" alternative. An agency should analyze this alternative with the same rigor that it gives to the other alternatives. Other alternatives examined will depend upon the agency and circumstances, but we recommend that several options be considered. Too narrow a focus may result in the SHPO requesting consideration of additional alternatives. The SHPO may request additional information or clarification of points in a case study until it determines the document is satisfactory and the agency has made a competent case for a particular alternative. Using the example of a building demolition described above, perhaps an agency does not have the funds to rehabilitate the building and is using that fact to support its argument for demolition. However, could the building be sold to another entity that might rehabilitate it, or mothballed until a sale is possible? What are the arguments for or against these options?

### Components

There is no required format or length for a case study. However, a good case study will state the problem to be solved and will outline, with supporting data, *at least* three alternatives the agency has considered in order to solve the problem. The agency will then conclude with an argument for its preferred alternative. The agency should provide a strong case for the preferred alternative, particularly if the alternative will result in impacts to cultural resources.

An agency may submit as a Section 106 Case Study an Environmental Assessment (EA), Environmental Impact Statement (EIS) or similar document that has been completed in satisfaction of other regulatory requirements *if* that document meets the requirements outlined above.

### Questions?

Contact the SHPO's Cultural Resource Management Staff

**State Historic Preservation Office**  
Michigan State Housing Development Authority  
702 W. Kalamazoo Street  
P.O. BOX 30740  
Lansing, MI 48909-8240

Phone: 517-372-1630  
Email: [Preservation@Michigan.gov](mailto:Preservation@Michigan.gov)

\*\* This document was prepared to assist federal agencies and their delegated authorities in their compliance with the regulations implementing Section 106 of the National Historic Preservation Act of 1966, as amended (36 CFR Part 800). Case studies may be necessary even when Section 106 is not applicable, such as when Michigan law and guidelines require SHPO review. The SHPO recommends that the concepts and practices outlined in this guidance be followed any time a case study concerning threatened cultural resources is required or desired.



#### **10.0 QUALIFICATIONS OF ENVIRONMENTAL PROFESSIONALS**

The data assembly, interpretation, report production, and technical conclusions reached herein, were completed by Ms. Jennifer Bowyer and Mr. David A. Van Haaren of AKT Peerless Environmental Services.

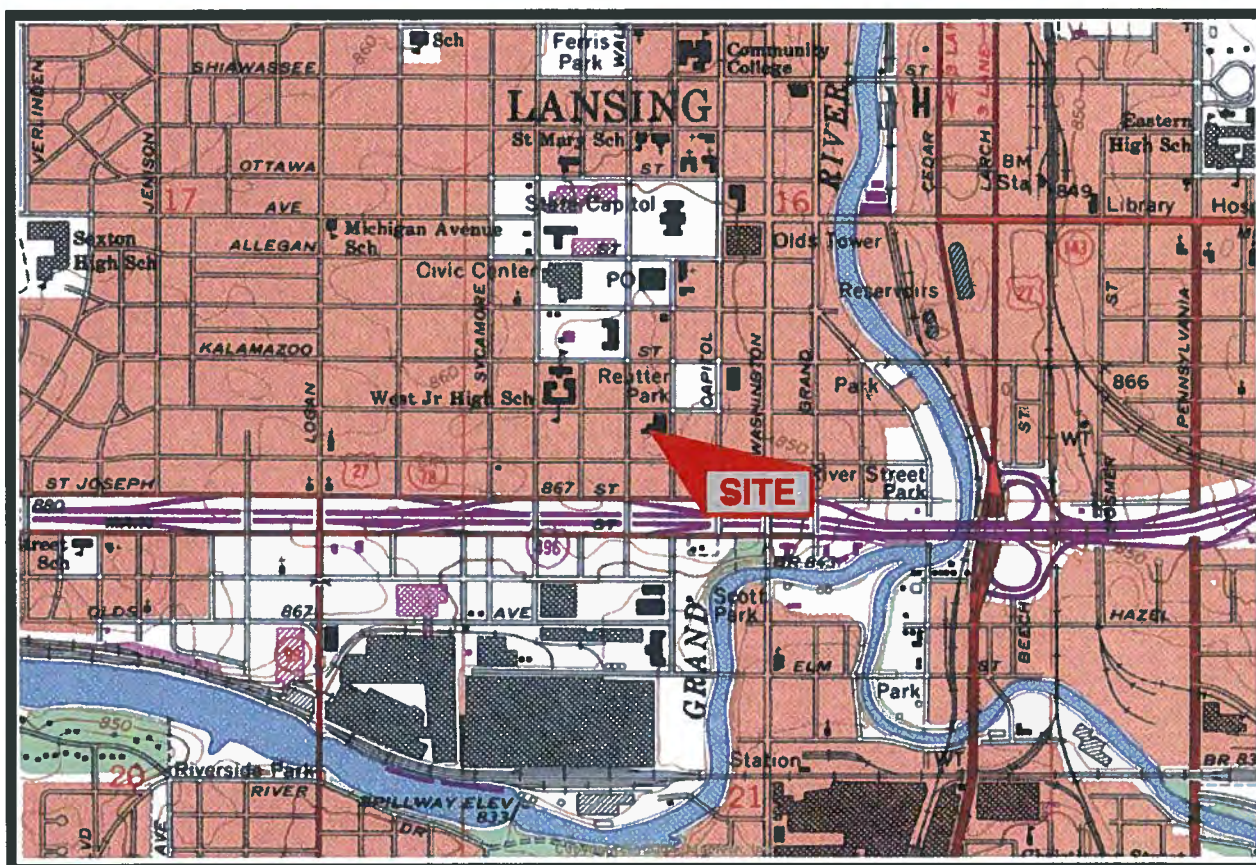
Ms. Bowyer, Project Manager, has ten years of environmental consulting experience. She received her Bachelor of Science Degree from Michigan State University in Engineering.

Mr. Van Haaren, Sr. Project Manager/Sr. Associate, has fourteen years of environmental consulting experience. He received his Bachelor of Science Degree in Industrial and Environmental Health Management/Hazardous Waste Management from Ferris State University.

## FIGURES

# LANSING SOUTH QUADRANGLE

MICHIGAN - INGHAM COUNTY  
7.5 MINUTE SERIES (TOPOGRAPHIC)



T.4 N. - R.2 W.



CONTOUR INTERVAL 10 FEET  
DATUM IS MEAN SEA LEVEL



IMAGE TAKEN FROM 1965 U.S.G.S. TOPOGRAPHIC MAP  
PHOTOREVISED 1973

**AKTPEERLESS**  
environmental services  
FARMINGTON DETROIT SAGINAW LANSING  
WWW.AKTPEERLESS.COM

TOPOGRAPHIC LOCATION MAP  
ELLE ENTERPRISES LLC and LANSING BRA  
FORMER YMCA  
301 WEST LENAWE STREET  
CITY OF LANSING, MICHIGAN  
PROJECT NUMBER : 5700L/L2-5-26

DRAWN BY: jeb  
DATE: 2-22-08

FIGURE 1

Michigan Association Of  
Community Mental Health  
426 South Walnut Street

Former  
Gasoline Station  
(1939-1970)

Grandy Porter Building / Ingham County Offices  
303 West Kalamazoo Street

400 South Capitol Avenue  
City Park

N  
W-E  
S

W. Lenawee Street



South Chestnut Street  
Parking Lot

Savory Court

524 South Walnut Street  
Residential

South Walnut Street  
Parking Lot

524 / 526 Townsend Street  
Dentist / Capitol Services Inc.

Townsend Street

The Porter Apartment Building  
505 Townsend Street

**GEOPHYSICAL SURVEY AREA MAP**  
ELLE ENTERPRISES LLC & LANSING BRA  
FORMER YMCA  
301 WEST LENAWEE STREET  
CITY OF LANSING, MICHIGAN  
PROJECT NUMBER : 5700L/L2-5-26

**AKTPEERLESS**  
environmental services  
FARMINGTON DETROIT SAGINAW LANSING  
WWW.AKTPEERLESS.COM

**LEGEND**  
--- = PROPERTY LINE  
[Red Hatched Box] = GEOPHYSICAL ANOMALY  
[Red Hatched Box] = GEOPHYSICAL SURVEY AREA

DRAWN BY: jeb  
DATE: 2-15-08

0 35 70  
SCALE: 1" = 70'±

FIGURE 2



Michigan Association Of  
Community Mental Health  
428 South Walnut Street

Former  
Gasoline Station  
(1939-1970)

Grandy Porter Building / Ingham County Offices  
303 West Kalamazoo Street

400 South Capitol Avenue  
City Park

N  
W-E  
S

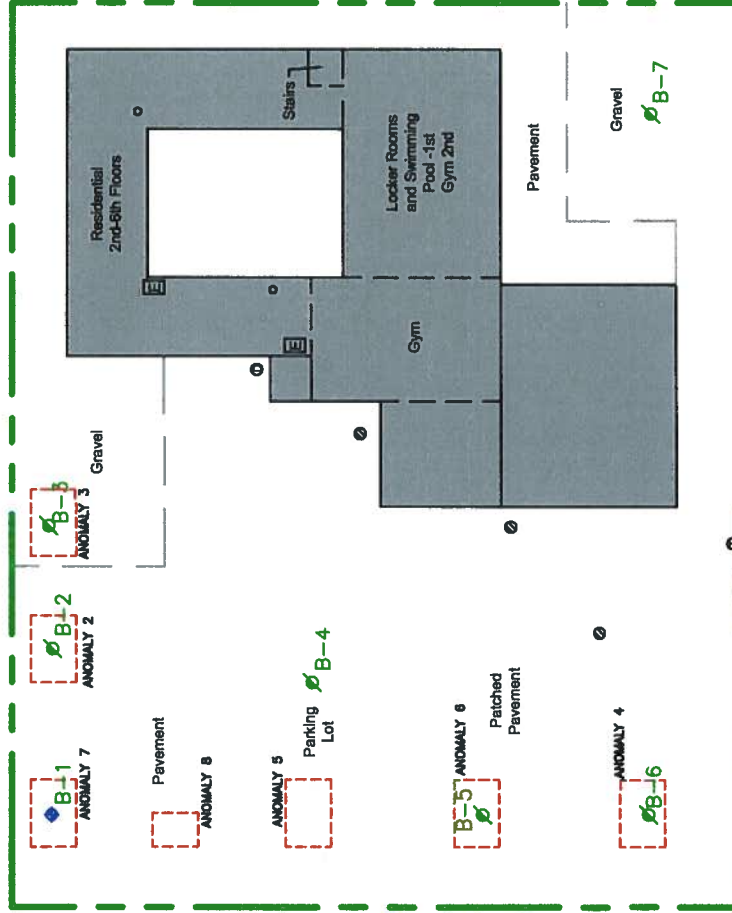
South Chestnut Street  
Parking Lot

Savory Court

524 South Walnut Street  
Residential

South Walnut Street  
Parking Lot

524 / 528 Townsend Street  
Dentist / Capitol Services Inc.



Townsend Street

The Porter Apartment Building  
505 Townsend Street

**SAMPLE LOCATION MAP**  
ELLE ENTERPRISES LLC and LANSING BRA  
FORMER YMCA  
301 WEST LENAWEE STREET  
CITY OF LANSING, MICHIGAN  
PROJECT NUMBER : 5700/L2-5-26

**AKTPEERLESS**  
environmental services  
FARMINGTON DETROIT SAGINAW LANSING  
WWW.AKTPEERLESS.COM

**LEGEND**  
= PROPERTY LINE  
= GEOPHYSICAL ANOMALY  
= SOIL BORING LOCATION  
= SOIL BORING LOCATION  
W/ TEMP. MONITORING WELL

DRAWN BY: jeb  
DATE: 2-15-08

0 35 70  
SCALE: 1" = 70'±

FIGURE 3

## **TABLES**

Table 1  
Summary of Soil Analytical Results  
Former YMCA  
301 W. Lenawee Street  
Lansing, Michigan  
AKT Peerless Project Number

Sample Identification and Date		Statewide Default Background Levels	Groundwater Protection			Indoor Air	Ambient Air (Y)		Direct Contact								
			Residential and Commerical I Drinking Water Protection Criteria & RBSLs	Residential and Commerical I Groundwater Surface Water Interface Protection Criteria & RBSLs	Residential and Commerical I Groundwater Contact Protection Criteria & RBSLs	Residential and Commerical I Soil Volatilization to Indoor Air Inhalation Criteria & RBSLs	Residential and Commerical I Infinite Source Volatile Soil Inhalation Criteria (VSIC) & RBSLs	Residential and Commerical I Particulate Soil Inhalation Criteria & RBSLs	Residential and Commerical I Direct Contact Criteria & RBSLs	Soil Saturation Concentration Screening Levels	B-1 (2.0-2.5') 2.18.2008	B-2 (3.5-4.0') 2.18.2008	B-3 (13.5-14.5') 2.18.2008	B-4 (2.0-3.0') 2.18.2008	B-5 (4.0-5.0') 2.18.2008	B-6 (3.0-4.0') 2.18.2008	B-7 (4.0-5.0') 2.18.2008
Analytes	CAS#																
Volatile Organic Compounds (VOCs) (ug/Kg)																	
Benzene (I)	71432	NA	100	4,000 (X)	2.2E+5	1,600	13,000	3.8E+8	1.8E+5	4.0E+5	<50	<50	<50	<50	<50	<50	<50
1,2-Dichloroethane (I)	107062	NA	100	7,200 (X)	3.8E+5	2,100	6,200	1.2E+8	91,000	1.2E+6	<50	<50	<50	<50	<50	<50	<50
Ethylbenzene (I)	100414	NA	1,500	360	1.4E+5 (C)	87,000	7.2E+5	1.0E+10	1.4E+5 (C)	1.4E+5	<50	<50	<50	<50	<50	<50	<50
Ethylene dibromide	106934	NA	20 (M); 1.0	20 (M); 4.0	500	670	1,700	1.4E+7	92	8.9E+5	<20	<20	<20	<20	<20	<20	<20
2-Methylnaphthalene	91576	NA	57,000	ID	5.5E+6	ID	ID	ID	8.1E+6	NA	<330	<330	74,000	1,600	<330	<330	<330
Methyl-tert-butyl ether (MTBE)	1634044	NA	800	15,000 (X)	5.9E+6 (C)	5.9E+6 (C)	2.5E+7	2.0E+11	1.5E+6	5.9E+6	<250	<250	<250	<250	<250	<250	<250
Naphthalene	91203	NA	35,000	870	2.1E+6	2.5E+5	3.0E+5	2.0E+8	1.6E+7	NA	<330	<330	4,900	<330	<330	<330	<330
Toluene (I)	108883	NA	16,000	2,800	2.5E+5 (C)	2.5E+5 (C)	2.8E+6	2.7E+10	2.5E+5 (C)	2.5E+5	<50	<50	<50	<50	<50	<50	<50
1,2,4-Trimethylbenzene (I)	95636	NA	2,100	570	1.1E+5 (C)	1.1E+5 (C)	2.1E+7	8.2E+10	1.1E+5 (C)	1.1E+5	<100	<100	360	<100	<100	<100	<100
1,3,5-Trimethylbenzene (I)	108678	NA	1,800	1,100	94,000 (C)	94,000 (C)	1.6E+7	8.2E+10	94,000 (C)	94,000	<100	<100	270	<100	<100	<100	<100
Xylenes (I)	1330207	NA	5,600	700	1.5E+5 (C)	1.5E+5 (C)	4.6E+7	2.9E+11	1.5E+5 (C)	1.5E+5	<150	<150	<150	<150	<150	<150	<150
Remaining VOCs	various	various	various	various	various	various	various	various	various	various	NT	ND	NT	ND	ND	ND	ND
Ethylene Glycol (ug/Kg)																	
Ethylene glycol	107211	NA	3.0E+5	NA	1.1E+8 (C)	NLV	NLV	6.7E+10	1.1E+8 (C)	1.1E+8	<10,000	NT	<10,000	NT	NT	NT	NT
Polynuclear Aromatic Hydrocarbons (PNAs) (ug/Kg)																	
Benzo(a)anthracene (Q)	56553	NA	NLL	NLL	NLL	NLV	NLV	ID	20,000	NA	NT	<330	NT	690	<330	<330	<330
Benzo(a)pyrene (Q)	50328	NA	NLL	NLL	NLL	NLV	NLV	1.5E+6	2,000	NA	NT	<330	NT	600	<330	<330	<330
Benzo(b)fluoranthene (Q)	205992	NA	NLL	NLL	NLL	ID	ID	ID	20,000	NA	NT	<330	NT	760	<330	<330	<330
Benzo(g,h,i)perylene	191242	NA	NLL	NLL	NLL	NLV	NLV	8.0E+8	2.5E+6	NA	NT	<330	NT	330	<330	<330	<330
Chrysene (Q)	218019	NA	NLL	NLL	NLL	ID	ID	ID	2.0E+6	NA	NT	<330	NT	540	<330	<330	<330
Fluoranthene	206440	NA	7.3E+5	5,500	7.3E+5	1.0E+9 (D)	7.4E+8	9.3E+9	4.6E+7	NA	NT	<330	NT	1,100	<330	<330	<330
2-Methylnaphthalene	91576	NA	57,000	ID	5.5E+6	ID	ID	ID	8.1E+6	NA	<330	<330	74,000	<330	<330	<330	<330
Phenanthrene	85018	NA	56,000	5,300	1.1E+6	2.8E+6	1.6E+5	6.7E+6	1.6E+6	NA	NT	<330	NT	390	<330	<330	<330
Pyrene	129000	NA	4.8E+5	ID	4.8E+5	1.0E+9 (D)	6.5E+8	6.7E+9	2.9E+7	NA	NT	<330	NT	910	<330	<330	<330
Remaining PNAs	various	various	various	various	various	various	various	various	various	various	NT	ND	NT	ND	ND	ND	ND
Total Metals Analysis (ug/Kg)																	
Arsenic	7440382	5,800	4,600	70,000 (X)	2.0E+6	NLV	NLV	7.2E+5	7,600	NA	NT	4,400	NT	6,200	6,000	3,600	4,300
Barium (B)	7440393	75,000	1.3E+6	(G,X)	1.0E+9 (D)	NLV	NLV	3.3E+8	3.7E+7	NA	NT	76,000	NT	100,000	100,000	87,000	74,000
Cadmium (B)	7440439	1,200	6,000	(G,X)	2.3E+8	NLV	NLV	1.7E+6	5.5E+5	NA	NT	590	NT	310	490	480	390
Chromium (VI)	18540299	NA	30,000	3,300	1.4E+8	NLV	NLV	2.6E+5	2.5E+6	NA	NT	10,000	NT	14,000	13,000	14,000	13,000
Copper (B)	7440508	32,000	5.8E+6	(G)	1.0E+9 (D)	NLV	NLV	1.3E+8	2.0E+7	NA	NT	13,000	NT	19,000	20,000	12,000	17,000
Lead (B)	7439921	21,000	7.0E+5	(G,X)	ID	NLV	NLV	1.0E+8	4.0E+5	NA	200,000	400,000	7,000	250,000	290,000	89,000	120,000
Mercury (Total) (B,Z)	Varies	130	1,700	50 (M); 152	47,000	48,000	52,000	2.0E+7	1.6E+5	NA	NT	320	NT	150	110	260	3,600
Selenium (B)	7782492	410	4,000	400	7.8E+7	NLV	NLV	1.3E+8	2.6E+6	NA	NT	450	NT	<200	<200	<200	<200
Silver (B)	7440224	1,000	4,500	100 (M); 27	2.0E+8	NLV	NLV	6.7E+6	2.5E+6	NA	NT	<100	NT	120	140	<100	<100
Zinc (B)	7440666	47,000	2.4E+6	(G)	1.0E+9 (D)	NLV	NLV	ID	1.7E+8	NA	NT	170,000	NT	130,000	150,000	160,000	98,000

B - Background, as defined in R 299.5701(b), may be substituted if higher than the calculated cleanup criterion.

C - Value presented is a screening level based on the chemical-specific generic soil saturation concentration (C<sub>sat</sub>) since the calculated risk-based criterion is greater than C<sub>sat</sub>.

D - Calculated criterion exceeds 100%, hence it is reduced to 100% or 1.0E+9 ppb.

G - Groundwater surface water interface (GSI) criterion depends on the pH or water hardness, or both, of the receiving surface water.

I - Hazardous substance may exhibit the characteristic of ignitability as defined in 40 C.F.R. Section 261.21 (revised as of July 1, 2001), which is adopted by reference in these rules and which is available for inspection at the Lansing office of the department, 525 West Allegan Street, Lansing, Michigan.

M - Calculated criterion is below the analyticals target detection limit, therefore, the criterion defaults to the target detection limit.

Q - Criteria for carcinogenic polycyclic aromatic hydrocarbons were developed using relative potential potencies to benzo(a)pyrene.

X - The groundwater surface water interface (GSI) criterion shown in the generic cleanup criteria tables is not protective for surface water that is used as a drinking water source.

Y - Source size modifiers shall be used to determine soil inhalation criteria for ambient air when the source size is not 1/2 acre.

Z - Mercury is typically measured as total mercury.

ID - Insufficient data to develop criterion.

NA - Criterion or value is not available or, in the case of background and chemical abstract service numbers, not applicable.

NLV - Hazardous substance is not likely to volatilize under most conditions.

NLL - Hazardous substance is not likely to leach under most soil conditions.

ND - Target analyte level not present above detection limits

NT - Sample not tested for this analyte



Sample Identification and Date		CAS#	Residential & Commercial I Drinking Water Criteria & RBSLs	Groundwater Surface Water Interface Criteria & RBSLs	Residential & Commercial I Groundwater Validation to Indoor Air Inhalation Criteria & RBSLs	Groundwater Contact Criteria & RBSLs	Water Solubility	B-1/TMW (B-1-WS) 2/18/2008	B-1/TMW (B-1-WS) 2/18/2008
<b>Analytes</b>									
<b>Volatile Organic Compounds (VOCs) (ug/L)</b>									
Benzene (I)		71432	5.0 (A)	200 (X)	5,600	11,000	1,75E+6	<1.0	<1.0
1,2-Dichloroethane (I)		107062	5.0 (A)	360 (X)	9,600	19,000	8,52E+6	<1.0	<1.0
Ethylbenzene (I)		100414	74 (E)	18	1.1E+5	1.7E+5 (S)	1,69E+5	<1.0	<1.0
Ethylene dibromide		106934	0.05 (A)	0.2 (X)	2,400	25	4.20E+6	<1.0	<1.0
2-Methylanthracene		91576	260	ID	ID	25,000 (S)	24,600	<5.0	<5.0
Methyl-tert-butyl ether (MTBE)		1654044	40 (E)	730 (X)	4,7E+7 (S)	6,1E+5	4,68E+7	<5.0	<5.0
Naphthalene		91203	520	13	31,000 (S)	31,000 (S)	31,000	<5.0	<5.0
Toluene (I)		108883	790 (E)	140	5.3E+5 (S)	5.3E+5 (S)	5,26E+5	<1.0	<1.0
1,2,4-Trimethylbenzene (I)		95636	63 (E)	17	56,000 (S)	56,000 (S)	55,890	<1.0	<1.0
1,3,5-Trimethylbenzene (I)		108678	72 (E)	45	61,000 (S)	61,000 (S)	61,150	<1.0	<1.0
Xylenes (I)		1330207	280 (E)	35	1.9E+5 (S)	1.9E+5 (S)	1,86E+5	<1.0	<1.0
Remaining VOCs		Various	-	-	-	-	-	NT	NT
<b>Ethylene glycol (ug/L)</b>									
Ethylene glycol		107211	15,000	1.9E+5 (X)	NLV	1.0E+9 (S)	1.0E+9	<10,000	<10,000
<b>Polynuclear Aromatic Hydrocarbons (PNAs) (ug/L)</b>									
Benzo(a)anthracene		191242	1.0 (M); 0.26 (S)	NA	NLV	1.0 (M,AA); 0.26 (S)	0.26	NT	NT
Benzo(b)fluoranthene (Q)		207089	1.0 (M); 0.8 (S)	NA	NLV	1.0 (M,AA); 0.8 (S)	0.8	NT	NT
Indeno(1,2,3-cd)pyrene (Q)		193395	2.0 (M); 0.022 (S)	ID	NLV	2.0 (M,AA); 0.022 (S)	0.022	NT	NT
2-Methylanthracene		91576	260	ID	ID	25,000 (S)	24,600	<5.0	<5.0
Remaining PNAs		Various	-	-	-	-	-	NT	NT
<b>Total Metals Analysis (ug/L)</b>									
Antimony		7440382	10 (A)	150 (X)	NLV	4,300	NA	NT	6.3
Barium (B)		7440393	2,000 (A)	(G,X)	NLV	1.4E+7	NA	NT	420
Cadmium (B)		7440439	5.0 (A)	(G,X)	NLV	1.9E+5	NA	NT	<1.0
Chromium (VI)		1854099	100 (A)	11	NLV	4.6E+5	NA	NT	17
Copper (B)		7440508	1,000 (B)	(G)	NLV	7.4E+6	NA	NT	20
Lead (B)		7439921	4.0 (B); 0.05 (S)	(G,X)	NLV	ID	NA	NT	240
Mercury (Total) (B,2)		Varies	2.0 (A)	0.00013	56 (S)	56 (S)	56	NT	0.36
Selenium (B)		7782492	50 (A)	5.0	NLV	9.7E+5	NA	NT	<5.0
Silver (B)		7440224	34	0.2 (M); 0.06 (S)	NLV	1.5E+6	NA	NT	15
Zinc (B)		7440666	2,400	(G)	NLV	1.1E+8	NA	NT	160

Notes: A - Criterion is the state of Michigan drinking water standard established pursuant to section 5 of 1976 PA 399, MCL 325.1005.

B - Background, as defined in R 299.5701(b), may be substituted if higher than the calculated cleanup criterion.

C - Criterion is the aesthetic drinking water value, as required by section 20120a(5) of the act.

G - Groundwater surface water interface (GSI) criterion depends on the pH or water hardness, or both, of the receiving surface water.

I - Hazardous substance may exhibit the characteristic of ignitability as defined in 40 C.F.R. Section 261.21 (revised as of July 1, 2001), which is adopted by reference in these rules and which is available for inspection.

L - Criteria for lead are derived using a biologically based model, as allowed for under section 20120a(1)(d) of the act, and are not calculated using the algorithms and assumptions specified in pathway-specific rules.

M - Calculated criterion is below the analytical target detection limit, therefore, the criterion defaults to the target detection limit.

Q - Criteria for carcinogenic polycyclic aromatic hydrocarbons were developed using relative potential potencies to benzo(a)pyrene.

S - Criterion defaults to the hazardous substance-specific water solubility limit.

X - The groundwater surface water interface (GSI) criterion above is an evaluation of whether the hazardous substances are absorbed to particulates rather than dissolved in water and whether filtered groundwater samples were used to evaluate groundwater.

Z - Mercury is typically measured as total mercury.

AA - Comparison to these criteria may take into account an evaluation of whether the hazardous substances are absorbed to particulates rather than dissolved in water and whether filtered groundwater samples were used to evaluate groundwater.

ID - Insufficient data to develop criterion.

NA - Criterion or value is not available or, in the case of background and chemical abstract service numbers, not applicable.

NLV - Hazardous substance is not likely to volatilize under most conditions.

NT - Not tested

[illegible]

**APPENDIX A**  
**LEGAL DESCRIPTION**

Gra	Grantee	Sale Price	Date	Inst Type	Terms of Sale	Liber & Page	Verified by	Pront Trans
MICH ASSOC OF COMM MENTAL H	YMCA	58,100	04/01/1999	WD	CASH/CONV-NOT USED	L2748/P567	M NICHOLS	0.0
<div> <div> <div>Property Address</div> <div>301 W LENAWE ST</div> </div> <div> <div>Owner's Name/Address</div> <div>YMCA</div> </div> <div> <div>Legal Description</div> <div>LOTS 1 THRU 4 &amp; 9 THRU 12; BLOCK 147 ORIG PLAT</div> </div> <div> <div>Comments/Influences</div> <div>08/01 - BUILDING IN FAIR TO AVERAGE CONDITION FOR AGE. 1/5/04 KIM WOODS 484-6464 EXT 23 IS THIS A FINANCE LEASE. INQUIRY ABOUT THE TAXES ON LEASED EQUIPMENT</div> </div> </div>								
Class: EXEMPT - REAL		Zoning:		Building Permit(s)		Date	Number	Amount
School: LANSING				DEMOLITION		11/16/1998	D980089	
P.R.E. 0%				ALTERATIONS		10/20/1997	B971349	7,400
MAP #: B -0147 -0001								
2008 Est TCV Tentative								
<div> <div>X Improved</div> <div>Vacant</div> </div>		Public Improvements		<div> <div> <div>Land Value Estimates for Land Table M225.M225-DOWNTOWN-MISC</div> <div> <div>Description</div> <div>Frontage</div> <div>Depth</div> <div>Rate</div> <div>Adj.</div> <div>Reason</div> </div> </div> <div> <div>Rate Table SF #8: 6.50</div> <div>87120 SqFt</div> <div>6.50 93</div> <div>Total Est. Land Value =</div> <div>526,640</div> </div> </div>				
<div> <div>X</div> <div>Dirt Road</div> </div>		<div> <div>X</div> <div>Gravel Road</div> </div>		<div> <div>Work Description for Permit D980089, Issued 11/16/1998: COMMERCIAL AND ALL OTHER STRUCTURES</div> <div>Work Description for Permit B971349, Issued 10/20/1997: BARRIER FREE RAMP/DOOR</div> </div>				
<div> <div>X</div> <div>Paved Road</div> </div>		<div> <div>X</div> <div>Storm Sewer</div> </div>						
<div> <div>X</div> <div>Sidewalk</div> </div>		<div> <div>X</div> <div>Water</div> </div>						
<div> <div>X</div> <div>Sewer</div> </div>		<div> <div>X</div> <div>Electric</div> </div>						
<div> <div>X</div> <div>Gas</div> </div>		<div> <div>X</div> <div>Curb</div> </div>						
<div> <div>X</div> <div>Street Lights</div> </div>		<div> <div>X</div> <div>Standard Utilities</div> </div>						
<div> <div>X</div> <div>Underground Utils.</div> </div>		<div> <div>X</div> <div>Topography of Site</div> </div>						
<div> <div>X</div> <div>Level</div> </div>		<div> <div>X</div> <div>Rolling</div> </div>						
<div> <div>X</div> <div>Low</div> </div>		<div> <div>X</div> <div>High</div> </div>						
<div> <div>X</div> <div>Landscaped</div> </div>		<div> <div>X</div> <div>Swamp</div> </div>						
<div> <div>X</div> <div>Wooded</div> </div>		<div> <div>X</div> <div>Pond</div> </div>						
<div> <div>X</div> <div>Waterfront</div> </div>		<div> <div>X</div> <div>Ravine</div> </div>						
<div> <div>X</div> <div>Wetland</div> </div>		<div> <div>X</div> <div>Flood Plain</div> </div>						
<div> <div>X</div> <div>Who</div> </div>		<div> <div>X</div> <div>When</div> </div>		<div> <div>X</div> <div>What</div> </div>		<div> <div>2008</div> <div>LEG</div> <div>INSPECTE</div> </div>		
<div> <div>X</div> <div>039</div> </div>		<div> <div>X</div> <div>/</div> </div>		<div> <div>X</div> <div>2008</div> </div>		<div> <div>2006</div> <div>DC</div> </div>		
<div> <div>X</div> <div>08/07/2001</div> </div>		<div> <div>X</div> <div>DC</div> </div>		<div> <div>X</div> <div>08/07/2001</div> </div>		<div> <div>2005</div> <div>DC</div> </div>		
<div> <div>X</div> <div>Who</div> </div>		<div> <div>X</div> <div>When</div> </div>		<div> <div>X</div> <div>What</div> </div>		<div> <div>2008</div> <div>LEG</div> <div>INSPECTE</div> </div>		
<div> <div>X</div> <div>039</div> </div>		<div> <div>X</div> <div>/</div> </div>		<div> <div>X</div> <div>2008</div> </div>		<div> <div>2006</div> <div>DC</div> </div>		
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**APPENDIX B**

**AKT PEERLESS' PHASE I ESA**

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FOUND EARLIER IN APPENDIX H OF THIS JUNE 2014  
PHASE I ESA**

## **APPENDIX C**

### **AKT PEERLESS' PHASE II SUBSURFACE INVESTIGATION**





**PHASE II SUBSURFACE INVESTIGATION REPORT  
FORMER YMCA PROPERTY  
301 W. LENAWEE STREET  
LANSING, MICHIGAN 48933**

*for*

**ELLE ENTERPRISES, LLC  
1651 W. LAKE LANSING ROAD  
EAST LANSING, MI**

**AKT PEERLESS PROJECT NO. 5700L/5700L2-3-20  
FEBRUARY 28, 2008**

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**PHASE II SUBSURFACE INVESTIGATION REPORT  
FORMER YMCA PROPERTY  
301 W. LENAWEE STREET  
LANSING, MICHIGAN 48933**

**FOR**

**ELLE ENTERPRISES, LLC**

**AKT PEERLESS PROJECT NO. 5700L/5700L2-3-20**

**1.0 INTRODUCTION**

AKT Peerless Environmental Services (AKT Peerless) conducted a Phase II subsurface investigation (SI), at the former YMCA property, located at 301 W. Lenawee Street, Lansing, Michigan 48933 (herein referred to as the "subject property").

This report documents field activities, sampling protocols, and laboratory results associated with AKT Peerless' site investigation. The scope of work was based on AKT Peerless' Phase I Environmental Site Assessment (ESA), and American Society for Testing and Materials (ASTMs) "*Standard Guide for Environmental Site Assessments: Phase II Environmental Site Assessment Process E-1903*." ASTM E-1903 provides a framework for employing good commercial and customary practices in conducting a Phase II SI of a property with recognized environmental conditions (RECs).

The Phase II SI was conducted on behalf of Elle Enterprises, LLC. The investigation was conducted in accordance with AKT Peerless' Phase II proposal (PL-8549.2) dated February 14, 2007. Elle Enterprises, LLC may rely on the contents and conclusions of this report.

## 2.0 BACKGROUND

### 2.1 SITE DESCRIPTION AND FEATURES

The subject property is located in the southwest quadrant of Section 16 in the City of Lansing (T.4N./R.2W.), Ingham County, Michigan. The subject property is situated south of West Lenawee Street and between Townsend and South Walnut Streets. It consists of a rectangular parcel that contains approximately 2.00 acres. Young Men's Christian Association (YMCA) is the current owner of the subject property. Mr. Tony Fragale, Lansing YMCA President and CEO is the current manager of the subject property. The residential portion of the subject building was vacated around 1990 and the recreational and remaining portions of the subject building were vacated in January 2003. The subject property's parcel identification number is 33-01-01-16-379-083.

### 2.2 PHYSICAL SETTING

The subject property is currently developed as commercial and is located in an area of the City of Lansing that is characterized by commercial properties, surface roadways, curbs, gas and electric utilities, and municipal water and sewage disposal.

The following table describes the current uses of the adjoining properties, identified occupants, and noteworthy observations of environmental concern, if any, that were noted during AKT Peerless' recent reconnaissance of the adjoining properties:

Direction	Address	Current Use / Occupant	Potential Concerns
north	303 West Kalamazoo Street	office building / Grady Porter Building of Ingham County Offices	none observed
northeast	400 South Capitol Avenue	recreational / City of Lansing Park	none observed
east	505 Townsend Street	Residential / The Porter Apartment Building	none observed
south	524/526 Townsend Street	Commercial / dentist and Capitol Services	none observed
	South Walnut Street	parking lot	none observed
southwest	524 South Walnut Street	Residential / not determined	none observed
west	South Chestnut Street	Parking lot / Owner: Lansing School District	none observed
Northwest	426 South Walnut Street	Office building / Michigan Association of Community Health	none observed

## 2.3 HYDROGEOLOGIC SETTING

The following subsections present the regional geologic setting based on available published information. See Section 4.0 for a local geologic setting based on site work conducted at the subject property.

### 2.3.1 Topography and Surface Water Drainage

According to the USGS' *Topographic Map of the Lansing South Quadrangle*, which was published in 1965 and was photorevised in 1973, the subject property is situated approximately 859 feet above the National Geodetic Vertical Datum (NGVD). The subject property's topography appears to decline gently to the east-northeast.

### 2.3.2 Regional Geology and Hydrogeology

#### 2.3.2.1 Soil

According to the MDNR Geological Survey Division's *Bedrock Geology of Southern Michigan* (1987), bedrock beneath the subject property is classified as Saginaw Formation Unit, which is included in the Pottsville Series within the Pennsylvanian System of the Paleozoic Era. The depth to bedrock beneath the subject property was not readily available.

According to the Michigan Geological Survey Division's publication, *Quaternary Geology of Southern Michigan* (1982), soil in the subject property area is defined as medium textured glacial till. According to the Michigan Geological Survey Division's publication, *Quaternary Geology of Southern Michigan*, soils in the area are medium-textured glacial till. These soils are described as gray, grayish brown or reddish brown, nonsorted glacial debris; matrix is dominantly loam and silt loam texture, with variable amounts of cobbles and boulders. These soils occur as ground moraine, till plain, or undifferentiated ground moraine-end moraine complexes. Includes small areas of coarser or finer-textured tills as well as small areas of outwash. The thickness is highly variable locally, from less than 30 feet to as much as 60-90 feet.

According to the USDA's *Soil Survey of Ingham County, Michigan* (1979), soil at the subject property is classified as belonging to the Urban land-Marlette-Capac association, which is described as urban land and nearly level to hilly, well drained to somewhat poorly drained loamy soils. As indicated on Photo Sheet 9 of the soil survey, subject property soils are described as belonging to Urban land-Marlette complex, 2 to 12 percent slopes. These areas of Urban land and undulating and rolling, well drained and moderately well drained Marlette soils are on broad complex slopes, on ridges, on knolls and on side slopes. Areas are irregular in shape and range from 10 to 500 acres.

#### 2.3.2.2 Groundwater

AKT Peerless did not obtain or review reports that document actual groundwater conditions at or adjacent to the subject property. Therefore, AKT Peerless was unable to (1) identify the depth to shallow groundwater beneath the subject property, or (2) determine the groundwater flow direction beneath the subject property.

Typically, the water table aquifer flows toward a major drainage feature or in the same direction as the drainage basin does. The Grand River, which flows to the east, is located approximately 1,500 feet southeast of the subject property at its nearest point. Therefore, AKT Peerless infers that groundwater beneath the subject property flows to the southeast, with potential influence from the Grand River.

AKT Peerless' research did not identify any known groundwater recharge areas on the subject property or any groundwater supply or monitor wells on the subject property. The City of Lansing obtains its municipal water from various wells located throughout the City of Lansing.

## 2.4 SUBJECT PROPERTY HISTORY AND LAND USE

Based on review of aerial photographs, Sanborn Fire Insurance Maps, and other resources, a summary of the property history was developed. The following table summarizes the information pertaining to historical occupancy and use of the subject property:

Time Period	Improvements	Use	Owner / Occupant	Data Source(s)
1898	eight residences, five detached buildings, and one building labeled carpenter	residential	various	fire insurance maps
1899-1906	eight residences, four detached buildings, and one outhouse	residential	various	fire insurance maps
1907-1913	nine residences, one detached building, one building labeled carpenter and machine shop, and one outhouse	residential	various	fire insurance maps city directories
1914-1941	not determined	residential	S. Frances Moores, Nellie Freeman Stewart, and Carl C. Randall and wife	previous environmental reports city directories aerial photographs
1942-1949	not determined	residential	various including Ransom Fidelity Co / R.E. Olds Company	previous environmental reports city directories
1950-1952	YMCA building, six residences, three detached buildings, and one outhouse	residential and recreational	various including Young Men's	fire insurance maps interviews



Time Period	Improvements	Use	Owner / Occupant	Data Source(s)
			Christian Association	aerial photographs
1953	YMCA building, five residences three detached buildings, one office, and one outhouse	residential and recreational	various including Young Men's Christian Association	fire insurance maps interviews
1954 - 1966	YMCA building with an addition, two residences, two detached buildings, one office, one residence/office with a parking lot, and one outhouse	residential and recreational	various including Young Men's Christian Association	fire insurance maps interviews city directories aerial photographs
1967 - 1990	YMCA building with an addition, one office, one residence/office with a parking lot, two detached buildings, and one outhouse.	residential and recreational	various including Young Men's Christian Association	fire insurance maps municipal records interviews city directories aerial photographs
1991-1997	YMCA building, and one residence/office	residential and recreational (residential portion of YMCA building closed)	various including Young Men's Christian Association	fire department records interviews city directories aerial photographs
1998 - 2002	YMCA building	recreational	Young Men's Christian Association	municipal records interviews city directories
2003 - present	vacant YMCA building	none apparent	Young Men's Christian Association	municipal records city directories interviews reconnaissance city directories

The subject property was developed with residences and offices beginning in at least 1898. In 1950 the YMCA residential and recreational building was constructed. Between 1950 and 1997 the remaining houses on the subject property were demolished. The residential portion of the subject building was vacated around 1990. The recreational portion of the subject building was vacated in 2003 and the building has been vacant since that time.

## **2.5 ADJACENT PROPERTY HISTORY AND LAND USE**

### *North*

The adjoining property located north of the subject property, beyond West Lenawee Street was developed with approximately ten residential structures and stores from at least 1898 until 1953. A small carpenter building existed in 1898. A filling station existed on the northwestern portion of the property from approximately 1939 to 1970. A large Auto Owners Insurance Company building was constructed in 1950. Currently, the property contains the Grady Porter Building of Ingham County Offices.

### *Northeast*

The adjoining property to the northeast has contained a City of Lansing owned park since at least 1898. Currently, the property is used as a Park.

### *East*

This adjoining property to the east, beyond Townsend Street, was occupied by residential structures beginning in at least 1899. In 1920, the Porter Building was constructed. The building has been used for apartments, hotel, café, beauty shop, dining, and cocktail lounge. In 1939 the Auto Club of Lansing occupied the basement of the building. Business offices existed within the building in 1974-75. A nursery school existed within the building in 1965 to 1970. Currently, this adjoining property and building contain The Porter Apartment Building and parking lot.

### *South*

The adjoining properties to the south have contained residences and offices since at least 1898. A dental office existed at the eastern-most of the southern adjoining properties from 1955 to present. The western-most of the southern adjoining properties is currently a paved parking lot.

### *Southwest*

The adjoining property to the southwest has been developed with a residence since at least 1898. Currently a residential structure exists on the property.

### *West*

The adjoining property located to the west of the subject property beyond South Walnut Street has contained residential structures since at least 1898. Beginning in approximately 1966 the western portion of the property was used for parking. The residences on the property were demolished in the 1970s. This adjoining property is currently owned by the Lansing School District and is used as a parking lot.

### *Northwest*

The adjoining property located to the northwest of the subject property has contained residential structures since at least 1898. In 1966 an office building was constructed on the property. Currently, one office building exists on the property and the remainder of the property is used for parking.

## 2.6 PREVIOUS ENVIRONMENTAL INVESTIGATIONS

The following reports were provided to AKT Peerless by Mr. Julian Darden of Elle Enterprises, LLC for review:

### 2.6.1 Phase I Environmental Site Audit, Snell Environmental Group, Jan. 1991

A Phase I Environmental Site Audit was prepared for YMCA of Lansing by Snell Environmental Group, Inc. Snell Environmental Group's audit concluded that, other than a concern regarding asbestos, no further environmental investigation was recommended for the subject property. The report described a substantial amount of asbestos containing material (ACM) in the insulation, on the steam and hot and cold water lines, on the air handlers, the heat exchanger, some wall insulation, and in the green and brown floor tiles.

### 2.6.2 Report of Asbestos Evaluation, Snell Environmental Group, Feb. 1991

A Report of Asbestos Evaluation dated February 1991 was prepared for YMCA of Central Lansing by Snell Environmental Group, Inc. The Report of Asbestos Evaluation concludes that there is a "small amount" of asbestos containing material found within the subject building and all friable asbestos containing materials should be removed prior to renovation and demolition.

### 2.6.3 Transaction Screen, P.M. Environmental, March 1999

A Transaction Screen dated March 25, 1999 was prepared for Mr. Tony Fragale of YMCA of Lansing by PM Environmental, Inc. The Transaction Screen was performed for a vacant lot located at 319 West Lenawee Street, City of Lansing, Michigan. This property is now a portion of the subject property located west of the subject building. The transaction screen indicated that the structure on the property was demolished and fill material was brought onto the subject property in approximately 1998. This fill material originated from a gravel pit not known to contain contamination. According to the Transaction Screen, no demolition debris from the former structure remains at the subject property.

### 2.6.4 Phase I ESA, AKT Peerless Environmental Services, Nov. 2007

AKT Peerless completed a Phase I ESA of the former YMCA property on November 29, 2007. AKT Peerless' Phase I ESA included, but was not limited to, a site walkover, review of government records, assembly and review of data from area maps and directories, assessment of aerial photographs, and interviews with the site owner, others familiar with the subject property, and government officials. Upon review of the information collected, the following RECs were identified for the subject property:

1. A machine shop was observed on the subject property on a 1913 fire insurance map.

Hazardous substances and petroleum products may have been used in connection with this machine shop. Potential concerns associated with this historical use of the subject property include the potential for introduction of petroleum products and/or hazardous substances to the subject property via spills, releases and/or poor material handling/disposal practices.

2. Hazardous substances and petroleum products, as well as unidentified substances and containers exist on the subject property, especially within the basement of the subject building. AKT Peerless observed substances in unlabeled containers and evidence of leaking on the floor of the basement of the subject building. Due to the lack of electric lighting, AKT Peerless may not have had the opportunity to observe floor drains within the subject building.
3. The adjoining property to the north was used as a gasoline station between 1939 and 1970 and had contained three USTs. One confirmed release was discovered on October 13, 1999. Impacted soil was removed from the property in October 1999. According to a January 10, 2000 report prepared by SME, the extent of impact the leaking USTs made upon the soils found in the northwestern part of the site in the shallow soil has been defined to the south and east. The extent of impact to the north and west has not been defined. Soil and groundwater collected from two historical hand dug wells indicated that debris in the northern well was impacted with gasoline constituents. Soil and groundwater samples from the south well indicated elevated levels of lead.

In addition to the RECs noted above, the following areas of potential concern were also noted during AKT Peerless Phase I ESA:

- Based on the age of the subject building, fluorescent light ballasts noted during the site inspection may contain PCBs. It is AKT Peerless' opinion these fixtures represent a minimal environmental risk to the subject property. However, upon replacement of the fixtures during future renovations and/or demolition, the ballasts should be evaluated and, if PCB-containing, handled in accordance with applicable regulations.
- AKT Peerless was unable to determine if former structures on the subject property utilized water wells and/or septic systems.
- Natural gas was provided to the subject building beginning in at least 1977. Also, fire insurance maps from the years 1951, 1953, 1966, and 1972 depicted two vent pipes located on the subject building. The vent pipes may have been used for fuel oil storage tanks. The subject property has been developed with residential structures since at least 1898. It is possible that the subject building and/or former structures on the subject property utilized an alternative heating source (i.e. coal, fuel oil, wood, etc.) prior to the connection of natural gas.
- Based on the age of the subject building, hydraulic-powered elevators identified may contain PCBs. Upon future renovations and/or demolition, the hydraulic fluid should be evaluated and, if PCB-containing, handled in accordance with applicable regulations.
- A Phase I Environmental Site Audit was performed for the subject property in 1991.

The audit reported a concern regarding asbestos containing materials within the subject building. The report described a substantial amount of asbestos containing material in the insulation, on the steam and hot and cold water lines, the air handlers, the heat exchanger, some wall insulation, and in the green and brown floor tiles.

Based on the all of the above information, it was recommended that Phase II testing be performed to evaluate the RECs identified for the subject property.

### **3.0 SITE INVESTIGATION ACTIVITIES**

#### **3.1 SCOPE OF ASSESSMENT**

The scope of work for the Phase II SI was established to evaluate for the presence of environmental contamination at the subject property, and if present, determine if contaminant concentrations exceed MDEQ Part 201 Generic Residential Cleanup Criteria (GRCC) and Screening Levels: Residential and Commercial I Criteria developed under the authority of Part 201 of the Natural Resources and Environmental Protection Act (NREPA), 1994 P.A. 451, as amended. The purpose of the Phase II SI was not to fully delineate the extent of contamination, but to identify specific conditions based on the RECs identified in connection with the subject property.

##### **3.1.1 Proposed Sampling and Chemical Testing Plan**

The proposed sampling plan included the following scope of work to evaluate the identified RECs associated with the subject property:

- Conduct a geophysical survey of the entire subject property, except building footprint, to identify potential areas of subsurface anomaly. Possible anomalies include backfilled basement locations and underground storage tanks (USTs);
- Based on the results of the geophysical survey, advance up to five soil borings to a maximum depth of 20 feet below ground surface (bgs) to evaluate subsurface anomalies, and install two temporary monitor wells to evaluate potential UST contamination;
- Advance three borings to a maximum depth of 20 feet (bgs) and install one temporary monitoring well at the subject property to evaluate REC #1, the former machine shop location and potential contamination associated with operations there;
- Advance one boring to a maximum depth of twenty feet bgs and install one temporary monitoring well at the subject property to evaluate REC #3, the former gasoline station on the northern adjoining property;
- Collect up to nine soil and four water samples;

- Submit the nine soil samples and four water samples to a fixed-base, independent laboratory for chemical analysis;
- Collect up to eight QA/QC samples and submit to a fixed-base, independent laboratory for chemical analysis;
- Prepare Phase II Site Investigation report.

### 3.1.2 Deviations from the Proposed Sampling and Chemical Testing Plan

The following deviations from the proposed sampling plan and proposed chemical testing occurred during the completion of the Phase II SI:

- Nine soil borings were proposed; however, based on the results of the geophysical survey, seven were advanced. Three soil borings proposed to evaluate the former machine shop were located to evaluate both the machine shop and backfill areas;
- It was proposed to collect up to nine soil samples for laboratory analysis. Seven samples were collected and submitted;
- Four temporary monitoring wells were proposed to evaluate the subject property. Groundwater was encountered in only one soil boring, B-1. One temporary monitoring well was installed at B-1;
- It was proposed to collect up to four groundwater samples. One water sample was collected and submitted for laboratory analysis;
- Soil boring B-3 produced a strong petroleum odor. The analysis for that location was modified to include "MDEQ Leaded Gasoline" parameters;
- Three QA/QC samples were submitted, including field duplicate sample, field equipment blank, and "trip" or methanol blank.

There were no other significant deviations from the proposed sampling and chemical testing plan during the completion of the Phase II SI.

### 3.2 FIELD EXPLORATION AND METHODS

On February 15, 16, and 18, 2008 AKT Peerless conducted a Phase II subsurface investigation (SI) to evaluate the recognized environmental conditions identified in the Phase I ESA completed in November 2007. The Phase II SI was conducted on behalf of Elle Enterprises, LLC in general accordance with AKT Peerless' proposal PL-8549.2, dated February 14, 2008.

While on site to conduct Phase II investigation, AKT Peerless revisited the building interior to evaluate the risk of contamination due to leaking containers and potential floor drains (REC-2). AKT Peerless observed leaking containers in various locations of the subject building, but no floor drains were observed in those locations. In general, floor drains were restricted to the pool area, locker rooms, and bathrooms.

#### 3.2.1 Geophysical Survey, February 15-16, 2008, by WorkSmart, Inc.

On February 15 and 16, 2008, WorkSmart, Inc. (WorkSmart) conducted a Ground Penetrating Radar (GPR) survey of the subject property, including the parking lot(s) to the west of the subject building, and the gravel area to the southeast of the subject building. The purpose of the GPR survey was to evaluate for the presence of subsurface anomalies, including backfilled basements and/or USTs.

WorkSmart conducted its GPR survey utilizing a USRADAR SPR, which is equipped with a 250- or 500-megahertz (MHz) dipole antenna mounted on a trolley to scan the survey area. The area was surveyed on a one-meter grid pattern. WorkSmart identified seven (7) areas of subsurface disturbance consistent with filled basements. The locations of the anomalies are shown on the Figure 2, Geophysical Survey Area Map, and are described further in WorkSmart's Subsurface Imaging Report, included in Appendix A.

#### 3.2.2 Sampling Procedures

Sample collection, handling, transportation, and laboratory analysis were conducted in accordance with procedures outlined in MDEQ Operational Memorandum #2, Sampling and Analysis. This includes the collection of Quality Assurance/Quality Control (QA/QC) samples including field duplicate, field equipment blank, and methanol blank.

#### 3.2.3 Soil

On February 18, 2008, AKT Peerless' conducted soil sampling to evaluate the RECs identified in connection with the subject property. To evaluate the RECs, AKT Peerless: (1) advanced 7 soil borings to a maximum depth of 20 feet bgs, (2) collected 7 soil samples; and (3) submitted soil samples for laboratory analyses. Soil borings were completed following the "Standard Guide for Direct Push Soil Sampling for Environmental Site Characterizations," ASTM Designation D-6282.

The following table summarizes each REC, the investigation activities, and the laboratory analyses performed:



Recognized Environmental Condition(s)	Boring Identification	Analytical Parameter(s)
REC #3 – filling station on adjoining property to the north	B-1 B-3	MDEQ Leaded Gasoline Parameters: BTEX (benzene, toluene, ethylbenzene, and xylenes), TMB (trimethylbenzene) isomers, methyl-tert-butyl-ether (MTBE), ethylene dibromide (EDB), dichloroethane (DCA), naphthalene, 2-methylnaphthalene, and lead
REC #1 – former machine shop	B-2	volatile organic compounds (VOCs), polynuclear aromatic hydrocarbons (PNAs), “Michigan 10” Metals (arsenic, barium, cadmium, chromium, copper, lead, mercury, selenium, silver, zinc)
backfilled basements	B-3	
	B-4	
	B-5 B-6 B-7	

Figure 3, Sample Location Map, depicts the locations of soil borings advanced on the subject property.

### 3.2.4 Groundwater

On February 18, 2008, AKT Peerless’ conducted groundwater sampling to evaluate the RECs identified in connection with the subject property. To evaluate the RECs, AKT Peerless: (1) oversaw the advancement of 7 soil borings to a maximum depth of 20 feet bgs; (2) installed 1 temporary monitoring well at a select boring location; (3) collected 1 groundwater sample from the temporary monitoring well; and (4) submitted the water sample for laboratory analyses. The borings were completed following the “*Standard Guide for Direct Push Soil Sampling for Environmental Site Characterizations*,” ASTM Designation D-6282.

The following table summarizes each REC, the investigation activities, and the laboratory analyses performed:

Recognized Environmental Condition(s)	Proposed Sample Point(s)	Analytical Parameter(s)
REC #3 – filling station on adjoining property to the north	B-1-1WS	MDEQ Leaded Gasoline Parameters: BTEX (benzene, toluene, ethylbenzene, and xylenes), TMB (trimethylbenzene) isomers, methyl-tert-butyl-ether (MTBE), ethylene dibromide (EDB), dichloroethane (DCA), naphthalene, 2-methylnaphthalene, lead

The groundwater sample was collected in accordance with the MDEQ Remediation and Redevelopment Division (RRD) Operational Memorandum No. 2, Attachment 5 dated October 22, 2004, which became effective on February 2, 2005. The groundwater sample was collected with a peristaltic pump and dedicated tubing. Low flow purging and sampling protocols were followed during groundwater sample collection. The sample intake was placed in the middle-upper portion of the screened interval and the pump rate was intended to minimize draw down. Select water quality indicator parameters were monitored for well stabilization in the field to ensure the groundwater sample was representative of formation groundwater. The groundwater sample was collected following stabilization of pH, temperature, specific conductance, and turbidity for three consecutive field measurements. Measurements were taken at approximately 3-minute intervals until the parameters stabilized, at which point the samples were collected.

Figure 3, Sample Location Map, depicts the location of the temporary monitor well installed at the subject property.

### **3.4 QUALITY ASSURANCE/QUALITY CONTROL**

To ensure the accuracy of data collected during on site activities, AKT Peerless implemented proper QA/QC measures. The QA/QC procedures included, but were not limited to: (1) decontamination of sampling equipment before and between sampling events, (2) calibration of field equipment, (3) documentation of field activities, (4) sample preservation techniques, and (5) the collection of QA/QC samples.

#### **3.4.1 Decontamination of Equipment**

During sample collection, AKT Peerless adhered to proper decontamination procedures. Sampling equipment was decontaminated using the following methods to minimize potential cross-contamination of soil samples:

- Washing and scrubbing the equipment with non-phosphate detergent
- Rinsing the equipment with tap water
- Air-drying the equipment

#### **3.4.2 Calibration of Field Equipment**

During the Phase II SI, AKT Peerless implemented a photoionization detector (PID) to screen soil samples. The PID is maintained in a calibrated condition using isobutylene prior to site investigations. Sample depths were selected based on elevated PID readings, in combination with visual and olfactory senses.

#### **3.4.3 Documentation of Activities**

Subject property conditions (i.e. soil boring locations, weather conditions) were documented during Phase II SI activities by AKT Peerless' field representative. AKT Peerless visually

inspected the soil and prepared a geologic log for each soil boring. The logs include soil characteristics such as: (1) color, (2) composition (e.g., sand, clay, or gravel), (3) soil moisture and water table depth, and (4) signs of possible contamination (i.e., stained or discolored soil, odors). All soil samples were delivered to a laboratory under chain-of-custody documentation.

### 3.4.4 Sample Preservation Techniques

AKT Peerless collected samples according to U.S. EPA Publication SW-846, *"Testing Methods for Evaluating Solid Waste."* Samples were collected in laboratory-supplied containers, stored on ice, and submitted under chain-of-custody documentation to Fibertec Environmental Services in Holt, Michigan.

Samples collected for volatile analyses were field preserved with methanol in accordance with U.S. EPA Method 5035.

## 3.5 LABORATORY ANALYSES AND METHODS

AKT Peerless submitted 7 soil samples and 1 groundwater sample for laboratory analyses. The following table summarizes the samples submitted for laboratory analyses:

**Summary of Laboratory Analysis**

Sample Location	Matrix	Sample Depth (feet)	VOCs	PNAs	Michigan 10 Metals	MDEQ Leaded Gasoline Parameters	Ethylene Glycol	Lead
B-1	Soil	(2.0-2.5')				✓	✓	✓
B1-1WS	Water	(4-5')				✓	✓	✓
B-2	Soil	(3.5-4.0')	✓	✓	✓			
B-3	Soil	(13.5-14.5')				✓	✓	✓
B-4	Soil	(2.0-3.0')	✓	✓	✓			
B-5	Soil	(4.0-5.0')	✓	✓	✓			
B-6	Soil	(3.0-4.0')	✓	✓	✓			
B-7	Soil	(4.0-5.0')	✓	✓	✓			

The laboratory analyzed soil samples for: (1) VOCs in accordance with U.S. EPA Method 8260B/5035 and Method 8011; (2) PNAs in accordance with U.S. EPA Method 8270C/3550B; and (3) glycols in accordance U.S. EPA Method 8015B, and (4) metals in accordance with U.S. EPA Method 6020/3050B.

## **4.0 LOCAL GEOLOGY AND HYDROGEOLOGY**

### **4.1 LOCAL GEOLOGY**

During drilling activities, AKT Peerless observed and documented the following subsurface conditions:

- **ASPHALT:** in all soil borings except B-3, measuring 2-3 inches thick. In borings B-2, B-5, and B-7, the asphalt was underlain by a sand/gravel base layer.
- **GRAVEL:** in B-3 from ground surface to approximately 6 inches bgs.
- **FILL:** found in all borings except B-3, from about 0.25-feet bgs. Fill material consisted of sandy clay with trace amounts of brick, foundry sand, and other debris. Fill extends to depths between 3.5 to 5 feet bgs. In boring B-2, a thick layer of newspaper was observed in the sample at about 3.5-feet bgs.
- **CLAY:** sandy or silty clay found in all borings beneath the fill material, to the termination depth of 20 feet bgs. The clay was generally moist and firm. Occasional layers of sand were noted at various depths inter-bedded with the clay.

Refer to Appendix B for soil boring logs.

### **4.2 LOCAL HYDROGEOLOGY**

During drilling activities, AKT Peerless identified groundwater in one soil borings (B-1) at about 6 feet bgs. It is likely that this represents a perched water table rather than a groundwater aquifer. Temporary monitoring wells were installed at this soil boring location to allow for water sampling. One groundwater sample was collected from the temporary well for analysis.

## **5.0 ANALYTICAL RESULTS**

### **5.1 RELEVANT EXPOSURE PATHWAYS**

As defined in Michigan Public Act 451 Part 201, "relevant pathway" means an exposure pathway that is reasonable and relevant because there is a reasonable potential for exposure to a hazardous substance. The analysis of potential exposure pathways is based on existing conditions at the subject property.

#### **5.1.1 Exposure Pathway Evaluation**

The following subsections describe the potential exposure pathways and evaluate hazardous substances in light of the applicable criteria.

##### **Ingestion of Groundwater Pathway**

Shallow groundwater was encountered in one boring at the subject property, at about 6 feet bgs. Groundwater from the area of the subject property does not serve as the primary drinking water

source for properties in the City of Lansing, which obtains its municipal water from municipal wells. The nearest municipal well is located approximately 3/8-mile east of the subject property.

AKT Peerless' investigation was not sufficient to completely eliminate the potable groundwater pathway in accordance with MDEQ guidance. Therefore, ingestion of groundwater at the subject property may be a relevant exposure pathway.

Groundwater Venting to Surface Water Pathway

Groundwater Venting to Surface Water is not a human exposure pathway, but rather an exposure pathway for biological components living in lakes and streams. The subject property is located approximately 1,500 feet northwest of the Grand River. Therefore, groundwater venting to surface water may be a relevant exposure pathway.

Groundwater Contact Pathway

Groundwater was observed beneath the subject property at approximately 6 feet bgs. Due to its shallow depth, contact with groundwater is a potentially relevant exposure pathway.

Volatilization to Indoor Air Inhalation Pathway

Volatilization to Indoor Air Inhalation is a relevant exposure pathway.

Volatilization to Ambient Air Pathway

Volatilization to Ambient Air is a relevant exposure pathway.

Particulate Inhalation Pathway

Particulate Inhalation is a relevant exposure pathway.

Direct Contact Pathway

Direct Contact is a relevant exposure pathway.

## **5.2 MDEQ CRITERIA**

A "facility" is defined in Part 201 of the NREPA as "any area, place or property where a hazardous substance in excess of the concentrations which satisfy the requirements of section 20120a(1)(a) or (17) or the cleanup criteria for unrestricted residential use under part 213 has been released, deposited, disposed of, or otherwise comes to be located. Facility does not include any area, place, or property at which response activities have been completed which satisfy the cleanup criteria for the residential category provided for in section 20120a(1)(a) and (17) or at which corrective action has been completed under part 213 which satisfies the cleanup criteria for unrestricted residential use." Therefore, laboratory analytical results of the soil and groundwater samples were compared to Residential and Commercial I Generic Cleanup Criteria.

AKT Peerless' compared soil analytical results to the following MDEQ criteria: (1) Statewide Default Background Level (SDBLs), (2) Residential and Commercial I Drinking Water Protection (RDWP) Criteria, (3) Groundwater Surface Water Interface Protection (GSIP), (4)

Groundwater Contact Protection (GCP) Criteria, (5) Residential and Commercial I Soil Direct Contact (RSDC) Criteria, and (6) Soil Volatilization to Indoor Air (SVII) Criteria.

AKT Peerless' also compared water analytical results to the following MDEQ criteria: (1) Residential and Commercial I Drinking Water (RDW) Criteria, (2) Groundwater Surface Water Interface (GSI) Criteria, (3) Groundwater Contact (GC) Criteria, (4) Groundwater Volatilization to Indoor Air (GWVI) Criteria, and (5) Water Solubility (SOL).

### 5.3 SOIL ANALYTICAL RESULTS

AKT Peerless submitted 7 soil samples for laboratory analyses of the parameters outlined in Section 3.3.2. The soil analytical results exceeding MDEQ GRCC are summarized in the following table:

**Summary of Soil Analytical Results**

Parameter (CAS Number)	Residential and Commercial I Criteria Exceeded	Sample Identification	Maximum Concentration (µg/Kg)
Chromium (18540299)	GSIP	B-2 (3.5-4.0') B-4 (2.0-3.0') B-5 (4.0-5.0') B-6 (3.0-4.0') B-7 (4.0-5.0')	14,000
Mercury (7439976)	RDWP	B-2 (3.5-4.0') B-4 (2.0-3.0') B-5 (4.0-5.0') B-6 (3.0-4.0')	320
	RDWP GSIP	B-7 (4.0-5.0')	3,600
Selenium (7782492)	GSIP	B-2 (3.5-4.0')	450
Silver (7440224)	GSIP	B-4 (2.0-3.0') B-5 (4.0-5.0')	140
2-Methylnaphthalene (91576)	RDWP	B-3 (13.5-14.5')	74,000
Naphthalene (91203)	GSIP	B-3 (13.5-14.5')	4,900

Laboratory analytical results indicated all other target compound concentrations were below respective MDEQ Part 201 Generic Residential Cleanup Criteria (GRCC), or applicable MDEQ TDLs. Refer to Appendix C for laboratory analytical results. Refer to Table 1 for a summary of soil analytical results for soil samples submitted for laboratory analyses. Refer to Figure 3 for a sample location map with soil boring locations.

## 5.4 GROUNDWATER ANALYTICAL RESULTS

AKT Peerless submitted one groundwater sample for laboratory analyses of the parameters outlined in Section 3.3.3. The groundwater analytical results exceeding MDEQ GRCC are summarized below:

**Summary of Groundwater Analytical Results**

Parameter (CAS Number)	Residential and Commercial I Criteria Exceeded	Sample Identification	Maximum Concentration (µg/L)
Chromium (18540299)	GSI	FD (B-1 dup)	17
Lead (7439921)	RDW	B-1-1WS FD (B-1 dup)	250
Mercury (7439976)	GSI	FD (B-1 dup)	0.38
Silver (7440224)	GSI	FD (B-1 dup)	1.1

Laboratory analytical results indicated all other target compound concentrations were below respective MDEQ Part 201 GRCC, or applicable MDEQ TDLs. Refer to Table 2 for a summary of the groundwater analytical results and Appendix C for copies of the analytical results.

## 6.0 SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

### 6.1 SUMMARY OF ENVIRONMENTAL CONCERNS

As presented in Section 2.6.4, the following RECs were identified in connection with the subject property:

1. A machine shop was observed on the subject property on a 1913 fire insurance map.
2. Hazardous substances and petroleum products, as well as unidentified substances and containers exist on the subject property, especially within the basement of the subject building. AKT Peerless observed substances in unlabeled containers and evidence of leaking on the floor of the basement of the subject building.
3. The adjoining property to the north was used as a gasoline station between 1939 and 1970 and had contained three USTs, with one confirmed release discovered on October 13, 1999.

### 6.2 SUMMARY OF SITE INVESTIGATION

On February 15, 16 and 18, 2008, AKT Peerless conducted a Phase II SI to evaluate RECs identified in connection with the subject property. AKT Peerless conducted the following Phase II activities: (1) geophysical survey of the subject property; (2) oversaw the advancement of 7



soil borings to a maximum depth of 20 feet bgs; (3) collected 7 soil samples; (4) installed 1 temporary monitoring well, (5) collected 1 groundwater sample, (6) submitted soil and groundwater samples for laboratory analyses; and (7) submitted 3 samples for QA/QC testing.

Figure 3, Sample Location Map, depicts the location of the soil borings and temporary monitoring wells at the subject property.

### 6.3 CONCLUSIONS

AKT Peerless conducted soil and groundwater sampling in areas most likely to be impacted by contaminants based on the current and past use of the subject property. The results of the investigation indicate the following:

- Chromium, mercury, selenium, silver, 2-methylnaphthalene, and naphthalene are present in soil at concentrations exceeding MDEQ GRCC. Contaminant concentrations exceed the residential drinking water protection (RDWP), and/or groundwater surface water interface protection (GSIP) criteria.
- Chromium, lead, mercury, and silver are present in groundwater at concentrations exceeding MDEQ GRCC. Contaminant concentrations exceed the residential drinking water criteria (RDW), and/or groundwater surface water interface (GSI) criteria.

Based on laboratory analytical results, the former YMCA Property meets the definition of a *facility*, as defined in Part 201 of the NREPA, Michigan Public Act (PA) 451, 1994, as amended.

### 6.4 Recommendations

AKT Peerless recommends that a prospective purchaser prepare a Baseline Environmental Assessment for exemption to liability for cleanup of existing contamination under Michigan law. In addition, because the property meets the definition of a “facility”, an owner or operator is required to comply with the following due-care obligations listed below under Part 201.07a of NREPA:

- Undertake measures as are necessary to prevent exacerbation of the existing contamination.
- Exercise due care by undertaking response activity necessary to mitigate unacceptable exposure to hazardous substances, mitigate fire and explosion hazards due to hazardous substances, and allow for the intended use of the *facility* in a manner that protects the public health and safety.
- Take reasonable precautions against the reasonably foreseeable acts or omissions of a third party and the consequences that foreseeably could result from those acts or omissions.

## 7.0 REFERENCES

Listed below are documents utilized to aid in the completion of this Phase II SI. Data presentation, summaries and conclusions in this Phase II SI are general in nature and should not be considered apart from respective documents.

- “*Environmental Remediation*,” Part 201 of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.
- “*Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*,” ASTM Designation E-1527.
- “*Standard Practice for Environmental Site Assessments: Phase II Environmental Site Assessment Process*,” ASTM Designation: E-1903.
- “*Standard Guide for Direct Push Soil Sampling for Environmental Site Characterizations*,” ASTM Designation D-6282.
- “*Operational Memorandum 2, Sampling and Analysis Guidance*” MDEQ Remediation and Redevelopment Division, dated July 5, 2007.
- “*Phase I Environmental Site Assessment, Former YMCA, 301 W. Lenawee Street, City of Lansing, Michigan*,” AKT Peerless Environmental Services, November 29, 2007.


## **8.0 LIMITATIONS AND GENERAL COMMENTS**

The purpose of the Phase II SI was not to fully delineate the extent of contamination, but to evaluate specific conditions based on the REC's identified in the Phase I ESA completed by AKT Peerless.

The information and opinions obtained in this report are for the exclusive use of Elle Enterprises, LLC and the City of Lansing Brownfield Redevelopment Authority. No distribution to or reliance by other parties may occur without the express written permission of AKT Peerless. AKT Peerless will not distribute this report without the written consent of Elle Enterprises, LLC and the City of Lansing Brownfield Redevelopment Authority, or as required by law or by a Court order. The information and opinions contained in the report are given in light of that assignment. The report must be reviewed and relied upon only in conjunction with the terms and conditions expressly agreed upon by the parties and as limited therein. Any third parties who have been extended the right to rely on the contents of this report by AKT Peerless (which is expressly required prior to any third-party release), expressly agrees to be bound by the original terms and conditions entered into by AKT Peerless with Elle Enterprises, LLC and the City of Lansing Brownfield Redevelopment Authority.

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Report submitted by:

  
Jennifer Bowyer, P.E.  
Project Manager

Report reviewed by:

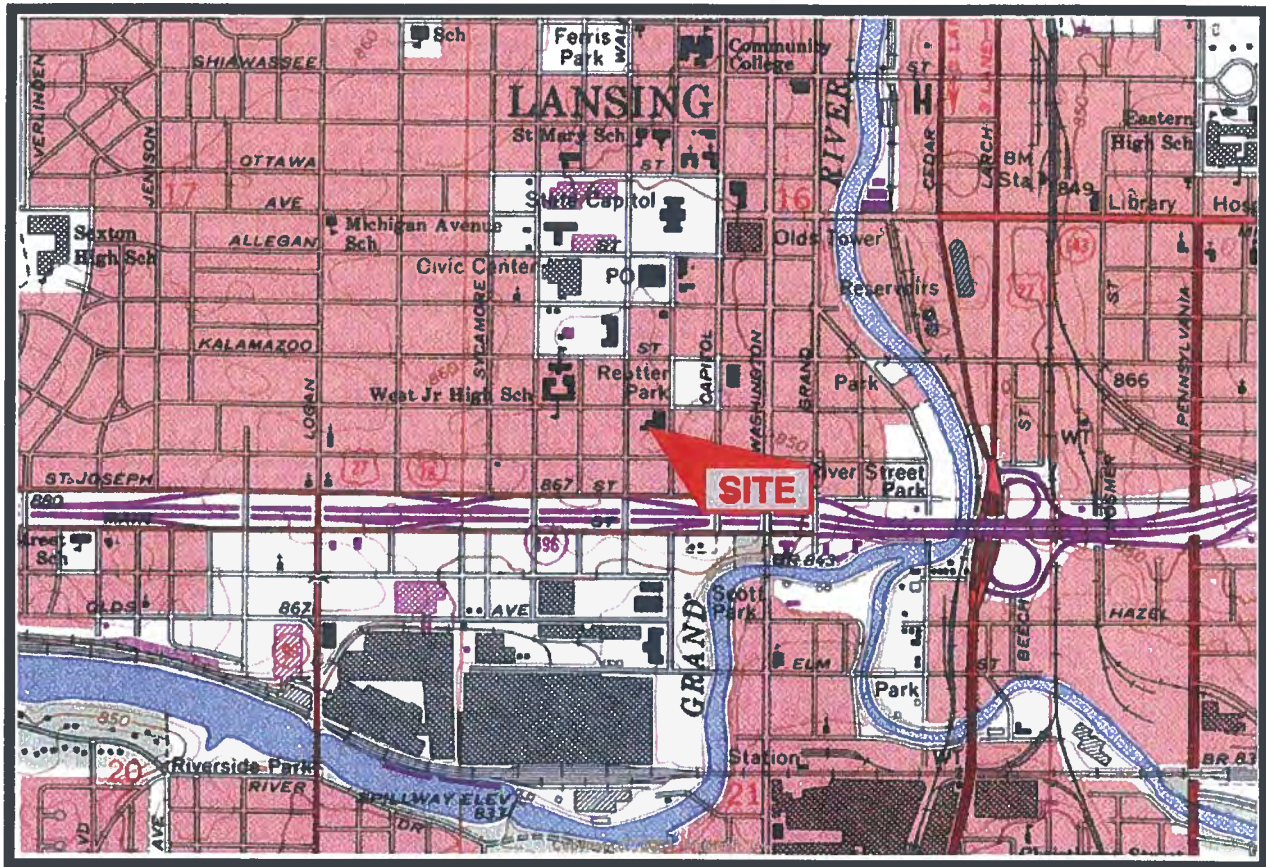
  
David A. Van Haaren  
Senior Project Manager/Senior Associate

February 28, 2008

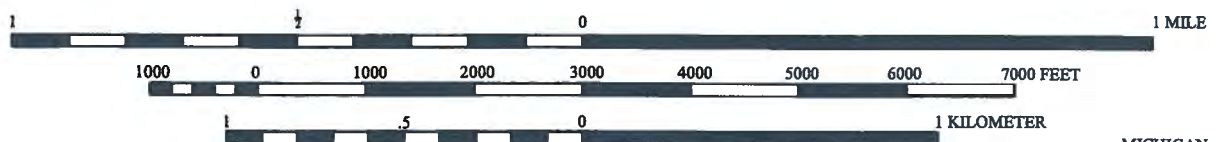
## Figures

# LANSING SOUTH QUADRANGLE

MICHIGAN - INGHAM COUNTY  
7.5 MINUTE SERIES (TOPOGRAPHIC)



T.4 N. - R.2 W.



CONTOUR INTERVAL 10 FEET  
DATUM IS MEAN SEA LEVEL



IMAGE TAKEN FROM 1965 U.S.G.S. TOPOGRAPHIC MAP  
PHOTOREVISED 1973

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environmental services  
FARMINGTON DETROIT SAGINAW LANSING  
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TOPOGRAPHIC LOCATION MAP  
ELLE ENTERPRISES LLC and LANSING BRA  
FORMER YMCA  
301 WEST LENAWEE STREET  
CITY OF LANSING, MICHIGAN  
PROJECT NUMBER : 5700L-3-20 and  
5700L2-3-20

DRAWN BY: jeb  
DATE: 2-22-08

FIGURE 1



**400 South Capitol Avenue  
City Park**

Former  
Gasoline Station  
(1939-1970)

**W. Lanawee Street**

**South Walnut Street**

**South Chestnut Street  
Parking Lot**

## Savory Court

524 South Walnut Street  
Residential

**South Walnut Street  
Parking Lot**




524 / 526 Townsend Street  
Dentist / Capitol Services Inc.

Townsend Street

**The Porter Apartment Building**  
505 Townsend Street

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**GEOPHYSICAL SURVEY AREA MAP**  
**ELLE ENTERPRISES LLC & LANSING BRANCH**  
**FORMER YMCA**  
**301 WEST LENAWEE STREET**  
**CITY OF LANSING, MICHIGAN**  
**PROJECT NUMBER : 5700L-3-20 and**  
**5700L2-3-20**

**LEGEND**  
 = PROPERTY LINE  
 = GEOPHYSICAL ANOMALY  
 = GEOPHYSICAL SURVEY AREA

DRAWN BY: jeb  
DATE: 2-15-08

0 35 70  
SCALE: 1" = 70'±

**FIGURE 2**

Michigan Association Of  
Community Mental Health  
426 South Walnut Street

Former  
Gasoline Station  
(1939-1970)

Grandy Porter Building / Ingham County Offices  
303 West Kalamazoo Street

W. Lenawee Street

400 South Capital Avenue  
City Park

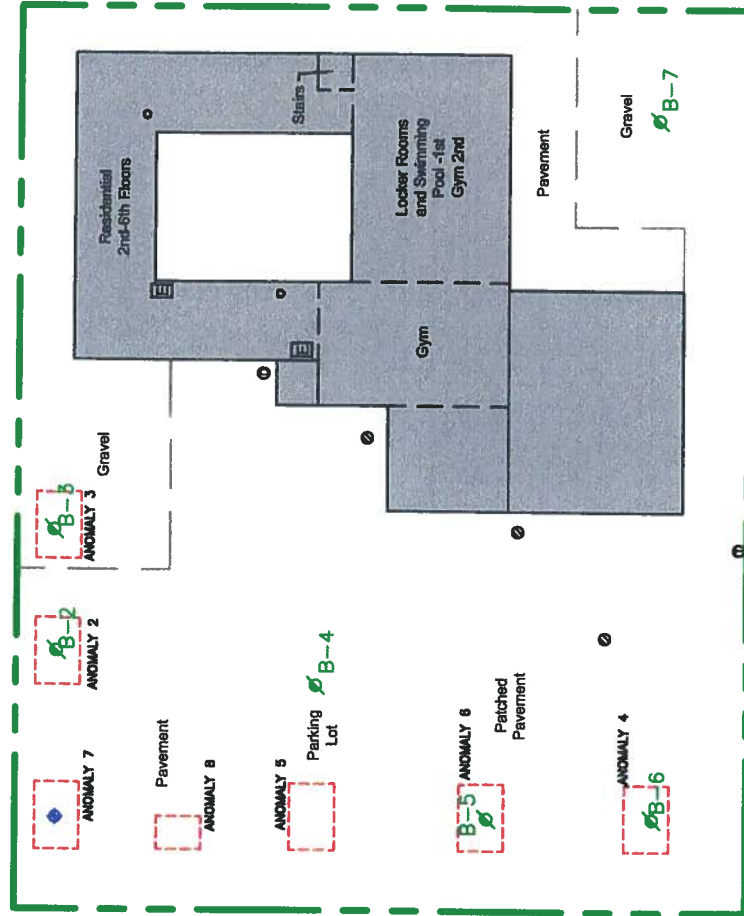
N  
W  
E  
S

South Chestnut Street  
Parking Lot

Savory Court

524 South Walnut Street  
Residential

South Walnut Street



South Walnut Street  
Parking Lot

524 / 528 Townsend Street  
Dentist / Capitol Services Inc.

The Porter Apartment Building  
505 Townsend Street

Townsend Street

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**SAMPLE LOCATION MAP**  
ELLE ENTERPRISES LLC and LANSING BRA  
FORMER YMCA  
301 WEST LENAWEE STREET  
CITY OF LANSING, MICHIGAN  
PROJECT NUMBER : 5700L-3-20 and  
5700L2-3-20

**LEGEND**  
= PROPERTY LINE  
= GEOPHYSICAL ANOMALY  
= SOIL BORING LOCATION  
= SOIL BORING LOCATION  
W/ TEMP. MONITORING WELL

DRAWN BY: jeb  
DATE: 2-15-08

0 35 70  
SCALE: 1" = 70' ±

FIGURE 3



## **Tables**

Table 1  
Summary of Soil Analytical Results  
Former YMCA  
301 W. Lenawee Street  
Lansing, Michigan  
AKT Peerless Project Number

Sample Identification and Date		Statewide Default Background Levels	Groundwater Protection			Indoor Air	Ambient Air (Y)		Direct Contact		B-1 (2.0-2.5') 2.18.2008	B-2 (3.5-4.0') 2.18.2008	B-3 (13.5-14.5') 2.18.2008	B-4 (2.0-3.0') 2.18.2008	B-5 (4.0-5.0') 2.18.2008	B-6 (3.0-4.0') 2.18.2008	B-7 (4.0-5.0') 2.18.2008
			Residential and Commerical I Drinking Water Protection Criteria & RBSLs	Residential and Commerical I Groundwater Surface Water Interface Protection Criteria & RBSLs	Residential and Commerical I Groundwater Contact Protection Criteria & RBSLs	Residential and Commerical I Soil Volatilization to Indoor Air Inhalation Criteria & RBSLs	Residential and Commerical I Infinite Source Volatile Soil Inhalation Criteria (VSIC) & RBSLs	Residential and Commerical I Particulate Soil Inhalation Criteria & RBSLs	Residential and Commerical I Direct Contact Criteria & RBSLs	Soil Saturation Concentration Screening Levels							
Analytes	CAS#																
Volatile Organic Compounds (VOCs) (ug/Kg)																	
Benzene (I)	71432	NA	100	4,000 (X)	2.2E+5	1,600	13,000	3.8E+8	1.8E+5	4.0E+5	<50	<50	<50	<50	<50	<50	<50
1,2-Dichloroethane (I)	107062	NA	100	7,200 (X)	3.8E+5	2,100	6,200	1.2E+8	91,000	1.2E+6	<50	<50	<50	<50	<50	<50	<50
Ethylbenzene (I)	100414	NA	1,500	360	1.4E+5 (C)	87,000	7.2E+5	1.0E+10	1.4E+5 (C)	1.4E+5	<50	<50	<50	<50	<50	<50	<50
Ethylene dibromide	106934	NA	20 (M); 1.0	20 (M); 4.0	500	670	1,700	1.4E+7	92	8.9E+5	<20	<20	<20	<20	<20	<20	<20
2-Methylnaphthalene	91576	NA	57,000	ID	5.5E+6	ID	ID	ID	8.1E+6	NA	<330	<330	74,000	1,600	<330	<330	<330
Methyl-tert-butyl ether (MTBE)	1634044	NA	800	15,000 (X)	5.9E+6 (C)	5.9E+6 (C)	2.5E+7	2.0E+11	1.5E+6	5.9E+6	<250	<250	<250	<250	<250	<250	<250
Naphthalene	91203	NA	35,000	870	2.1E+6	2.5E+5	3.0E+5	2.0E+8	1.6E+7	NA	<330	<330	4,900	<330	<330	<330	<330
Toluene (I)	108883	NA	16,000	2,800	2.5E+5 (C)	2.5E+5 (C)	2.8E+6	2.7E+10	2.5E+5 (C)	2.5E+5	<50	<50	<50	<50	<50	<50	<50
1,2,4-Trimethylbenzene (I)	95636	NA	2,100	570	1.1E+5 (C)	1.1E+5 (C)	2.1E+7	8.2E+10	1.1E+5 (C)	1.1E+5	<100	<100	360	<100	<100	<100	<100
1,3,5-Trimethylbenzene (I)	108678	NA	1,800	1,100	94,000 (C)	94,000 (C)	1.6E+7	8.2E+10	94,000 (C)	94,000	<100	<100	270	<100	<100	<100	<100
Xylenes (I)	1330207	NA	5,600	700	1.5E+5 (C)	1.5E+5 (C)	4.6E+7	2.9E+11	1.5E+5 (C)	1.5E+5	<150	<150	<150	<150	<150	<150	<150
Remaining VOCs	various	various	various	various	various	various	various	various	various	various	NT	ND	NT	ND	ND	ND	ND
Ethylene Glycol (ug/Kg)																	
Ethylene glycol	107211	NA	3.0E+5	NA	1.1E+8 (C)	NLV	NLV	6.7E+10	1.1E+8 (C)	1.1E+8	<10,000	NT	<10,000	NT	NT	NT	NT
Polynuclear Aromatic Hydrocarbons (PNAs) (ug/Kg)																	
Benzo(a)anthracene (Q)	56553	NA	NLL	NLL	NLL	NLV	NLV	ID	20,000	NA	NT	<330	NT	690	<330	<330	<330
Benzo(a)pyrene (Q)	50328	NA	NLL	NLL	NLL	NLV	NLV	1.5E+6	2,000	NA	NT	<330	NT	600	<330	<330	<330
Benzo(b)fluoranthene (Q)	205992	NA	NLL	NLL	NLL	ID	ID	ID	20,000	NA	NT	<330	NT	760	<330	<330	<330
Benzo(g,h,i)perylene	191242	NA	NLL	NLL	NLL	NLV	NLV	8.0E+8	2.5E+6	NA	NT	<330	NT	330	<330	<330	<330
Chrysene (Q)	218019	NA	NLL	NLL	NLL	ID	ID	ID	2.0E+6	NA	NT	<330	NT	540	<330	<330	<330
Fluoranthene	206440	NA	7.3E+5	5,500	7.3E+5	1.0E+9 (D)	7.4E+8	9.3E+9	4.6E+7	NA	NT	<330	NT	1,100	<330	<330	<330
2-Methylnaphthalene	91576	NA	57,000	ID	5.5E+6	ID	ID	ID	8.1E+6	NA	<330	<330	74,000	<330	<330	<330	<330
Phenanthrene	85018	NA	56,000	5,300	1.1E+6	2.8E+6	1.6E+5	6.7E+6	1.6E+6	NA	NT	<330	NT	390	<330	<330	<330
Pyrene	129000	NA	4.8E+5	ID	4.8E+5	1.0E+9 (D)	6.5E+8	6.7E+9	2.9E+7	NA	NT	<330	NT	910	<330	<330	<330
Remaining PNAs	various	various	various	various	various	various	various	various	various	various	NT	ND	NT	ND	ND	ND	ND
Total Metals Analysis (ug/Kg)																	
Arsenic	7440382	5,800	4,600	70,000 (X)	2.0E+6	NLV	NLV	7.2E+5	7,600	NA	NT	4,400	NT	6,200	6,000	3,600	4,300
Barium (B)	7440393	75,000	1.3E+6	(G,X)	1.0E+9 (D)	NLV	NLV	3.3E+8	3.7E+7	NA	NT	76,000	NT	100,000	100,000	87,000	74,000
Cadmium (B)	7440439	1,200	6,000	(G,X)	2.3E+8	NLV	NLV	1.7E+6	5.5E+5	NA	NT	590	NT	310	490	480	390
Chromium (VI)	18540299	NA	30,000	3,300	1.4E+8	NLV	NLV	2.6E+5	2.5E+6	NA	NT	10,000	NT	14,000	13,000	14,000	13,000
Copper (B)	7440508	32,000	5.8E+6	(G)	1.0E+9 (D)	NLV	NLV	1.3E+8	2.0E+7	NA	NT	13,000	NT	19,000	20,000	12,000	17,000
Lead (B)	7439921	21,000	7.0E+5	(G,X)	ID	NLV	NLV	1.0E+8	4.0E+5	NA	200,000	400,000	7,000	250,000	290,000	89,000	120,000
Mercury (Total) (B,Z)	Varies	130	1,700	50 (M); 1.2	47,000	48,000	52,000	2.0E+7	1.6E+5	NA	NT	320	NT	150	110	260	3,600
Selenium (B)	7782492	410	4,000	400	7.8E+7	NLV	NLV	1.3E+8	2.6E+6	NA	NT	450	NT	<200	<200	<200	<200
Silver (B)	7440224	1,000	4,500	100 (M); 27	2.0E+8	NLV	NLV	6.7E+6	2.5E+6	NA	NT	<100	NT	120	140	<100	<100
Zinc (B)	7440666	47,000	2.4E+6	(G)	1.0E+9 (D)	NLV	NLV	ID	1.7E+8	NA	NT	170,000	NT	130,000	150,000	160,000	98,000

B - Background, as defined in R 299.5701(b), may be substituted if higher than the calculated cleanup criterion.

C - Value presented is a screening level based on the chemical-specific generic soil saturation concentration (C<sub>sat</sub>) since the calculated risk-based criterion is greater than C<sub>sat</sub>.

D - Calculated criterion exceeds 100%, hence it is reduced to 100% or 1.0E+9 ppb.

G - Groundwater surface water interface (GSI) criterion depends on the pH or water hardness, or both, of the receiving surface water.

I - Hazardous substance may exhibit the characteristic of ignitability as defined in 40 C.F.R. Section 261.21 (revised as of July 1, 2001), which is adopted by reference in these rules and which is available for inspection at the Lansing office of the department, 525 West Allegan Street, Lansing, Michigan.

M - Calculated criterion is below the analyticals target detection limit, therefore, the criterion defaults to the target detection limit.

Q - Criteria for carcinogenic polycyclic aromatic hydrocarbons were developed using relative potential potencies to benzo(a)pyrene.

X - The groundwater surface water interface (GSI) criterion shown in the generic cleanup criteria tables is not protective for surface water that is used as a drinking water source.

Y - Source size modifiers shall be used to determine soil inhalation criteria for ambient air when the source size is not 1/2 acre.

Z - Mercury is typically measured as total mercury.

ID - Insufficient data to develop criterion.

NA - Criterion or value is not available or, in the case of background and chemical abstract service numbers, not applicable.

NLV - Hazardous substance is not likely to volatilize under most conditions.

NLL - Hazardous substance is not likely to leach under most soil conditions.

ND - Target analyte level not present above detection limits

NT - Sample not tested for this analyte

Sample Identification and Date		CAS#	Residential & Commercial I Drinking Water Criteria & RSLs	Groundwater Surface Water Interface Criteria & RSLs	Residential & Commercial I Groundwater Volatilization to Indoor Air Inhibition Criteria & RSLs	Groundwater Contact Criteria & RSLs	Water Solubility	B-1/TMW ID 2/18/2008	B-1/TMW ID 2/18/2008
Analytes									
Volatile Organic Compounds (VOCs) (ug/L)									
Benzene (I)		71432	5.0 (A)	200 (X)	5.600	11.000	1.75E+6	<1.0	<1.0
1,2-Dichloroethane (I)		107062	5.0 (A)	360 (X)	9.600	19.000	8.52E+6	<1.0	<1.0
Ethylbenzene (I)		100414	74 (E)	18	1.1E+5	1.7E+5 (S)	1.69E+5	<1.0	<1.0
Ethylene dichloride		106934	0.05 (A)	0.2 (X)	2.400	25	4.20E+6	<1.0	<1.0
2-Methylanthracene		91576	260	ID	ID	25,000 (S)	24,600	<5.0	<5.0
Methyl-tert-butyl ether (MTBE)		1634044	40 (E)	730 (X)	4.7E+7 (S)	6.1E+5	4.68E+7	<5.0	<5.0
Naphthalene		91203	520	13	31,000 (S)	31,000 (S)	31,000	<5.0	<5.0
Toluene (I)		108883	790 (E)	140	5.3E+5 (S)	5.3E+5 (S)	5.26E+5	<1.0	<1.0
1,2,4-Trinitrobenzene (I)		95636	63 (E)	17	56,000 (S)	56,000 (S)	55,890	<1.0	<1.0
1,3,5-Trinitrobenzene (I)		108678	72 (E)	45	61,000 (S)	61,000 (S)	61,150	<1.0	<1.0
Xylenes (I)		1330207	280 (E)	35	1.9E+5 (S)	1.9E+5 (S)	1.86E+5	<3.0	<3.0
Remaining VOCs		Various		-	-	-	-	NT	NT
Ethylene glycol (ug/L)									
Ethylene glycol		107211	15,000	1.9E+5 (X)	NLV	1.0E+9 (S)	1.0E+9	<10,000	<10,000
Polynuclear Aromatic Hydrocarbons (PNAs) (ug/L)									
Benz(a,h,i)perylene		191242	1.0 (M); 0.26 (S)	NA	NLV	1.0 (M); 0.26 (S)	0.26	NT	NT
Benz(a)fluoranthene (Q)		207089	1.0 (M); 0.8 (S)	NA	NLV	1.0 (M); 0.8 (S)	0.8	NT	NT
Indeno(1,2,3-cd)pyrene (Q)		193395	2.0 (M); 0.022 (S)	ID	NLV	2.0 (M); 0.022 (S)	0.022	NT	NT
2-Methylanthracene		91576	260	ID	ID	25,000 (S)	24,600	<5.0	<5.0
Remaining PNAs		Various	-	-	-	-	-	NT	NT
Total Metals Analysis (ug/L)									
Arsenic		7440382	10 (A)	150 (X)	NLV	4.300	NA	NT	6.3
Barium (B)		7440393	2,000 (A)	(G,X)	NLV	1.4E+7	NA	NT	420
Cadmium (B)		7440439	5.0 (A)	(G,X)	NLV	1.9E+5	NA	NT	<1.0
Chromium (VI)		18540299	100 (A)	11	NLV	4.6E+5	NA	NT	17
Copper (B)		7440508	1,000 (E)	(G)	NLV	7.4E+6	NA	NT	20
Lead (B)		7439921	4.0 (L)	(G,X)	NLV	ID	NA	NT	240
Mercury (Total) (B,2)		Various	2.0 (A)	0.0013	56 (S)	56 (S)	56	NT	0.38
Selenium (B)		7782492	50 (A)	5.0	NLV	9.7E+5	NA	NT	<5.0
Silver (B)		7440224	34	0.3 (M); 0.06 (G)	NLV	1.5E+6	NA	NT	1.1
Zinc (B)		7440666	2,400	(G)	NLV	1.1E+8	NA	NT	160

Notes:

A - Criterion is the state of Michigan drinking water standard established pursuant to section 5 of 1976 PA 395, MCL 325.1005

B - Background, as defined in R 299.5701(b), may be substituted if higher than the calculated cleanup criterion.

E - Criterion is the aesthetic drinking water value, as required by section 20120a(5) of the act.

G - Groundwater surface water interface (GSI) criterion depends on the pH or water hardness, or both, of the receiving surface water

I - Hazardous substance may exhibit the characteristic of ignitability as defined in 40 C.F.R. Section 261.21 (revised as of July 1, 2001), which is adopted by reference in these rules and which is available for inspection

L - Criteria for lead are derived using a biologically based model, as allowed for under section 20120a(10) of the act, and are not calculated using the algorithm and assumptions specified in pathway-specific rules

M - Calculated criterion is below the analytical target detection limit, therefore, the criterion defaults to the target detection limit.

Q - Criteria for carcinogenic polycyclic aromatic hydrocarbons were developed using relative potential potencies to benzo(a)pyrene.

S - Criterion defaults to the hazardous substance-specific water solubility limit.

X - The groundwater surface water interface (GSI) criterion shown in the generic cleanup criteria tables is not protective for surface water that is used as a drinking water source

Z - Mercury is typically measured as total mercury.

AA - Comparison to these criteria may take into account an evaluation of whether the hazardous substances are absorbed in particulates rather than dissolved in water and whether filtered groundwater samples were used to evaluate groundwater

ID - Insufficient data to develop criterion.

NA - Criterion or value is not available or, in the case of background and chemical abstract service numbers, not applicable

NLV - Hazardous substance is not likely to volatilize under most conditions

NT - Not tested

**Appendix A**

**Geophysical Survey Report  
WorkSmart, Inc.**



## **Subsurface Imaging Report**

**February 17, 2008**

### **Prepared For:**

AKT Peerless  
115 West Allegan  
Suite 900  
P.O. Box 12223  
Lansing, Michigan 48901

### **Job Identification:**

301 West Lenawee  
Lansing, Michigan

**1 Company Overview**

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**2 Equipment & Capabilities**

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**3 Site Location**

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**4 Radar Scans**

---

**5 Report Text**

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**6 FCC Information**

---

**7 Technician Signature Page**

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**8 Site Photographs**

---

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## **2 Equipment & Capabilities**

## **3 Site Location**

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# worksmart, inc.

## **Company Qualifications Statement**

Worksmart, Inc. was established in 1998 to provide subsurface scanning and locating services to industry, construction, environmental and private concerns around the United States. Our mission statement is simple " Provide the highest level of quality and professionalism for the best value to the customer in every area of our business. "

## **Key Personnel**

### *Michael P. McGarry, President & COO*

ERA Technologies, London, England - Advance studies graduate in Surface Penetrating Radar ( SPR ) applications, methodology and subsurface radar sciences  
USRADAR, Mattawan, New Jersey – SPR data interpretation training and sciences  
NULCA, National Utility Locating Contractors Association member  
CAM, Construction Association of Michigan  
RSPA, Research and Special Programs Administration compliant member

### *Denise Brausch, Vice-President*

USRADAR, Mattawan, New Jersey – SPR data interpretation training and sciences  
RSPA, Research and Special Programs Administration compliant member

## **Company Assurance**

General Liability \$3,000,000  
Automobile Liability \$1,000,000  
Excess Liability Umbrella \$3,000,000  
Workers Compensation \$100,000  
Professional Liability \$1,000,000 with Lloyds of London

**ISO compliant**

## **Primary Equipment**

ERA model from USRADAR, Inc. equipped with either a 500 MHz or 250 MHz antenna, survey trolley and unit controller. The latest version of SPR Super Scan Software 3.01. *As of September 1, 2000 all devices which emit radio frequency ( RF ) must comply with the safety limits for human exposure as set forth by the Federal Communications Commission. If any facility, operation or device is found not to be in compliance with the commissions RF exposure guidelines, the FCC will consider this a violation of its rules resulting in possible fines, forfeiture or other actions deemed appropriate by the commission.* Taken from the FCC Public Notice released February 25, 2000.

**Our GPR equipment is compliant with all federal regulations and has the FCC license attached.**

Po Box 442 - Paw Paw, Michigan 49079  
Voice: 800-565-3347 - 269-341-9529 Facsimile: 269-341-9530  
[WWW.worksmartinc.net](http://WWW.worksmartinc.net) - [radar01@voyager.net](mailto:radar01@voyager.net)



# worksmart, inc.

---

## *Company Information*

### **Physical Address**

Work Smart, Inc.  
63444 County Road 215  
Lawrence, Michigan 49064

### **Mailing Address**

P.O. Box 442  
Paw Paw, Michigan 49079  
Electronic Contact

[radar01@voyager.net](mailto:radar01@voyager.net)  
[www.worksmartinc.net](http://www.worksmartinc.net)

### **Phone Contacts**

Main Phone 1-800-565-3347 1-269-341-9529  
Fax 1-269-341-9530  
Mikes Cell 1-269-217-1042  
Denises Cell 1-269-720-8762

### **Miscellaneous**

Federal Identification Number	38-3461012
Tax Identification Number	38-3461012

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# worksmart, inc.



USRADAR SPR unit shown with 500 MHz antenna and trolley.



GPR unit shown with 500 MHz antenna on high speed rover.

Po Box 442 - Paw Paw, Michigan 49079  
Voice: 800-565-3347 - 269-341-9529 Facsimile: 269-341-9530  
[WWW.worksmartinc.net](http://WWW.worksmartinc.net) - [radar01@voyager.net](mailto:radar01@voyager.net)

## ***Equipment Capabilities***

Ground Penetrating Radar offers the means to detect buried objects that are not detectable by other methods. In addition to the ability to locate metallic objects, GPR is able to detect nonmetallic objects. The system sends radar pulses into the surface, then it receives and processes the reflected energy. Through advanced processing technology the system calibrates to the dielectric constant of the surrounding material. When the signal is reflected from a material having a different dielectric constant, the signal is displayed on the screen as an anomaly. Depth can also be determined by processing the sampling interval and determining anomaly. Depth can also be determined by processing the sampling interval and determining the size and comparing relative data of other objects detected.

The radar system is concentrating on changes in dielectric constants and not specifically analyzing the characteristics of those changes, therefore, determination of the composition of the object detected is limited, but possible to some degree. Characteristics of the underlying soils will effect the penetration of the radar through the ground. Sands and gravel's offer the best results with the greatest depth penetration and clearest resolution. Whereas, dense saturated clays offer limited penetration of the radar signal resulting in limited data to process from the returning signal.

GPR utilizes different bandwidth antennas depending on the desired result of the survey. A higher Megahertz antenna will offer the highest resolution, but will not penetrate the surface as far as a lower Megahertz antenna. The lower MHz antenna will penetrate to a greater depth, but the resolution will not be as great as with the higher MHz antenna. An example would be that a 1000 MHz antenna could easily pin point a household telephone wire behind 6 to 8 inches of concrete, a 250 MHz antenna might completely miss it.

With the following parameters in mind an example of expected performance would be:

500 MHz Antenna in clean dry sand, depth penetration 12-15 feet.

250 MHz Antenna in clean dry sand, depth penetration to 40 feet.

500 MHz Antenna in dense wet clay, depth penetration 4-6 feet.

250 MHz Antenna in dense wet clay, depth penetration to 15 feet.

Site investigation prior to radar deployment is critical in determining its suitability and capabilities for your specific needs. While we do make every effort to perform the most complete investigation, it is possible that due to any number of factors including those outlined above, an accurate detection may be difficult to produce in your area of interest. The more information we have, the higher the degree of success can be expected. The biggest limitation of GPR technology is the composition of the material medium through which the investigation will occur.

Po Box 442 - Paw Paw, Michigan 49079

Voice: 800-565-3347 - 269-341-9529 Facsimile: 269-341-9530

[WWW.worksmartinc.net](http://WWW.worksmartinc.net) - [radar01@voyager.net](mailto:radar01@voyager.net)

1 Company Overview

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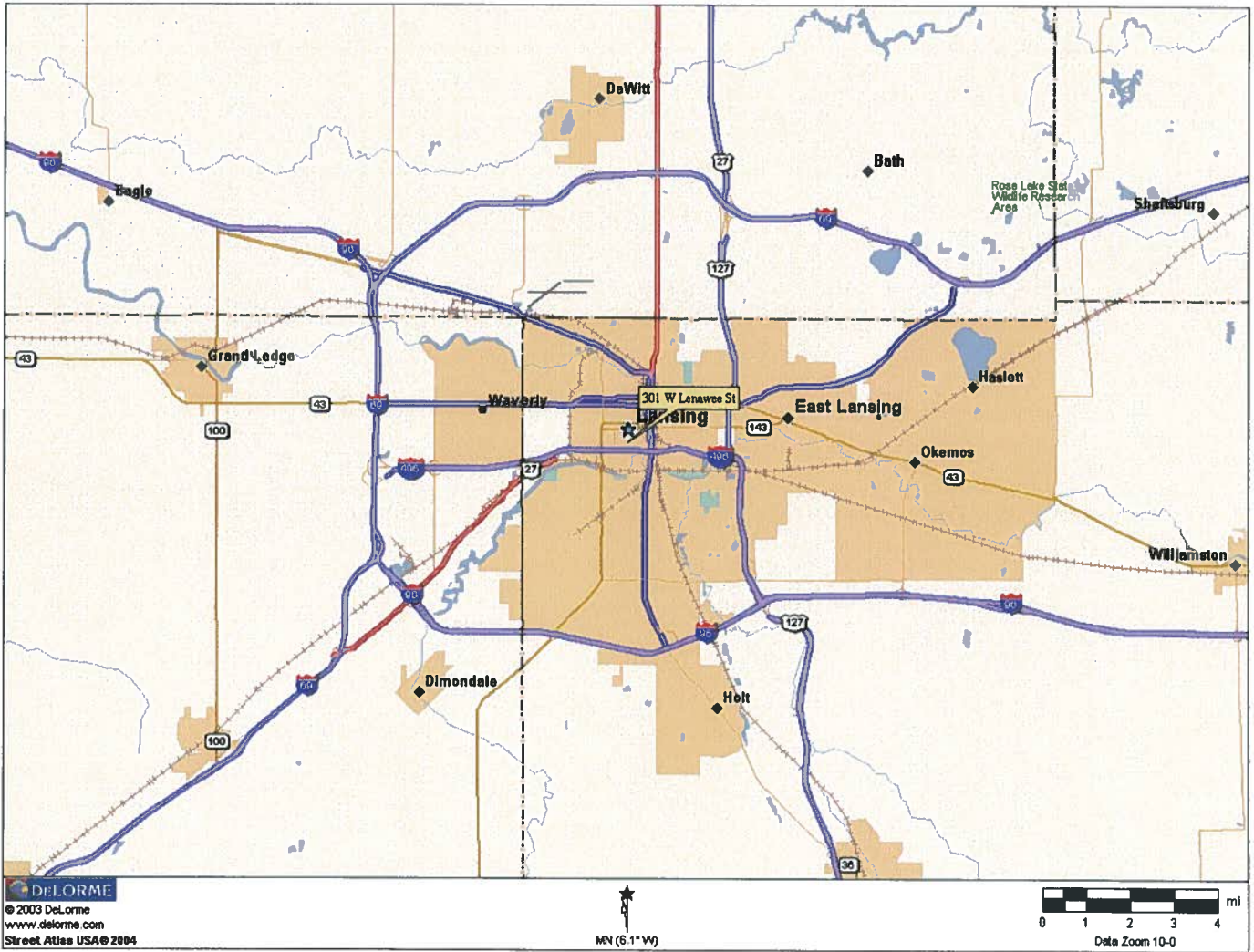
5 Report Text

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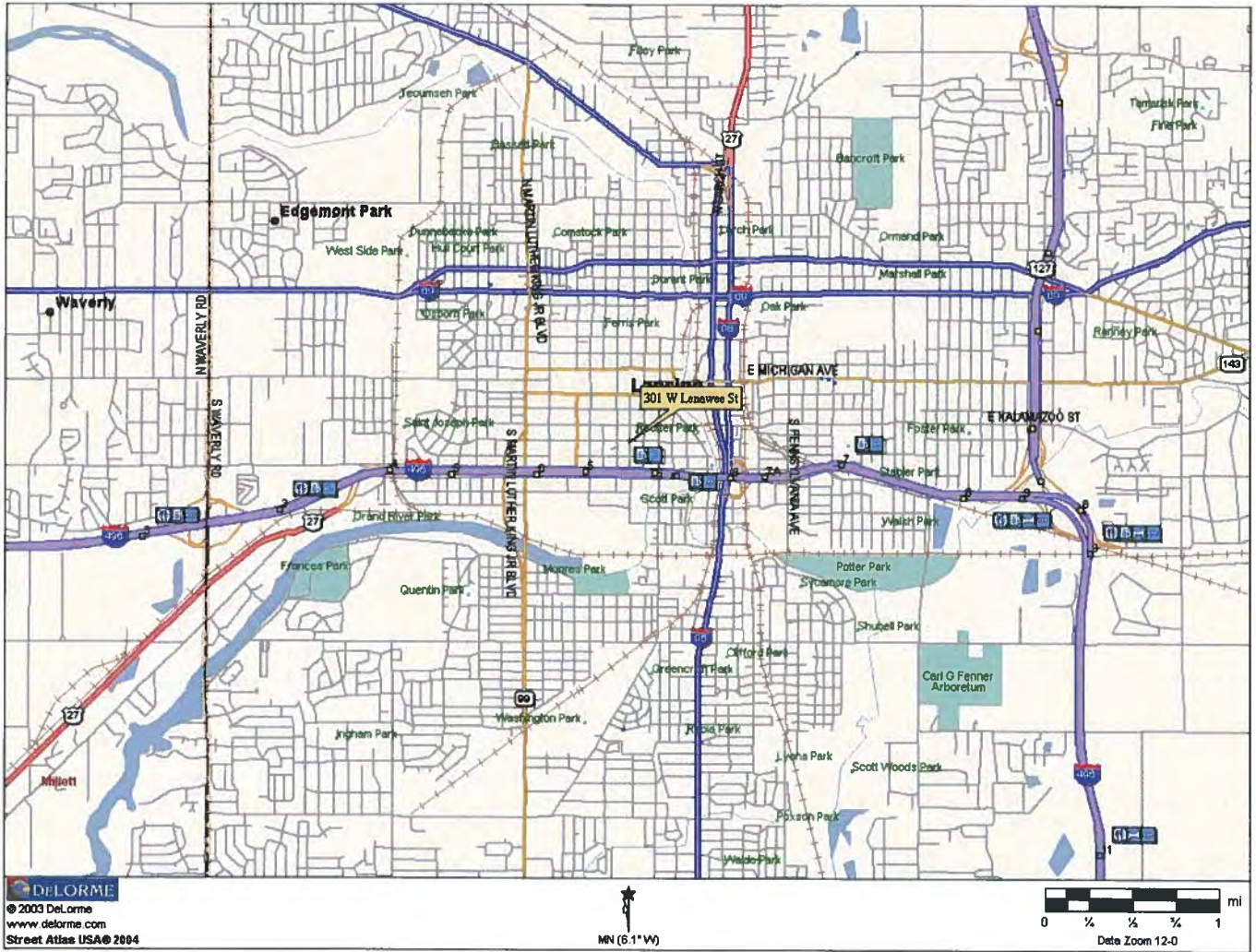
7 Technician Signature Page

8 Site Photographs











DeLORME  
© 2003 DeLorme  
www.delorme.com  
Street Atlas USA © 2004

MN (6° 1' W)

0 600 1000 ft  
Data Zoom 14-0



Light Pole

Curb Line

244

219

196

164

128

102

85

71

4

15

60

6

21

56

5

20

60

8

22

41

7

22

42

59

24

9

73

94

52

21

3

110

135

69

32

Gym

Locker Rooms  
and Swimming  
Pool - 1st  
Gym and

Stairs

Residential  
2nd-5th Floors

1 Company Overview

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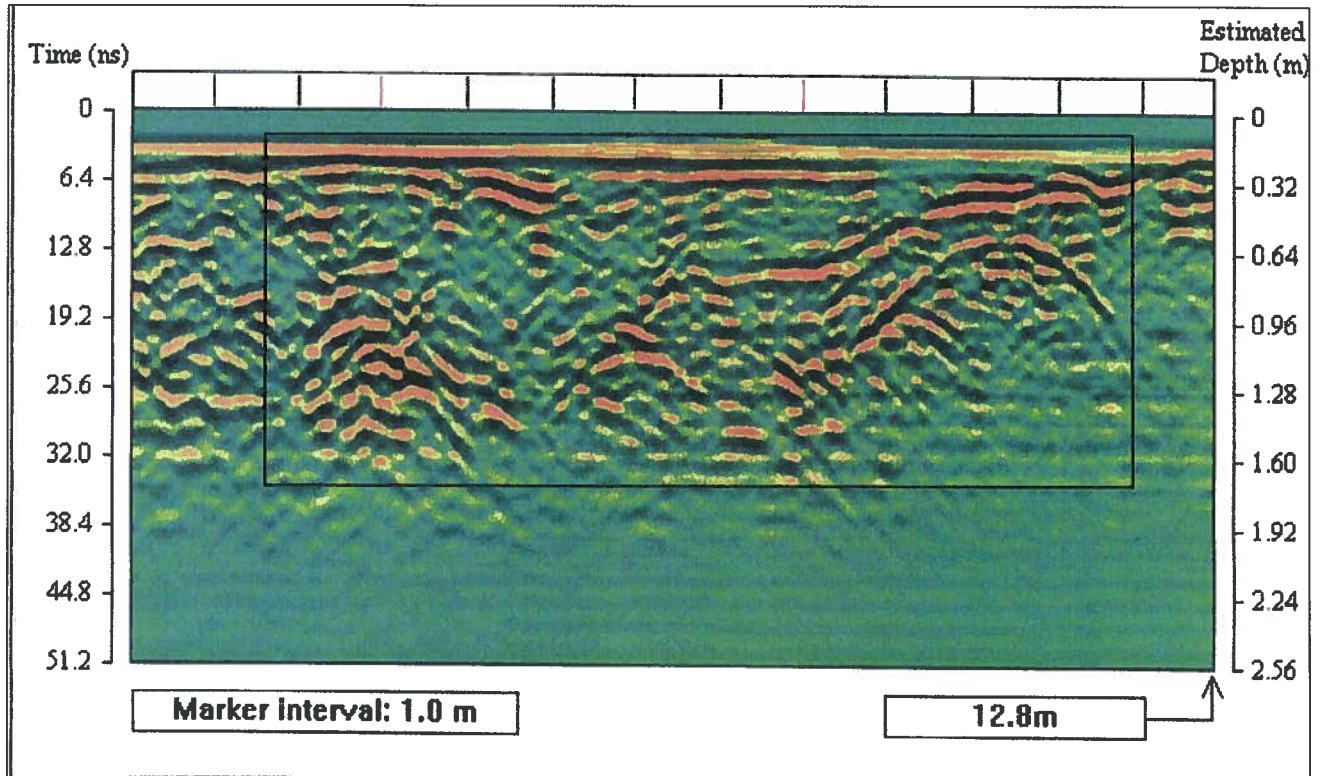
5 Report Text

6 FCC Information

7 Technician Signature Page

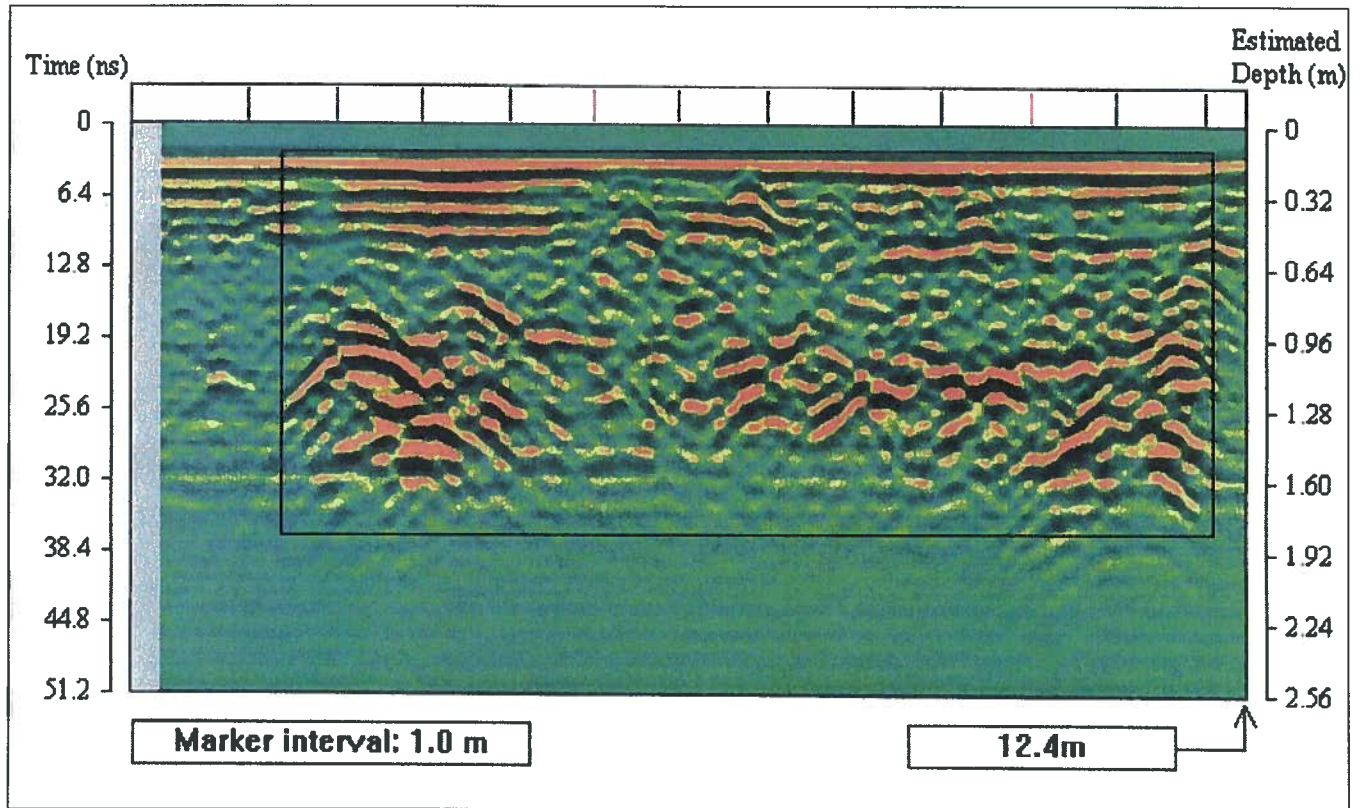
8 Site Photographs

# SVY\_3.RAD

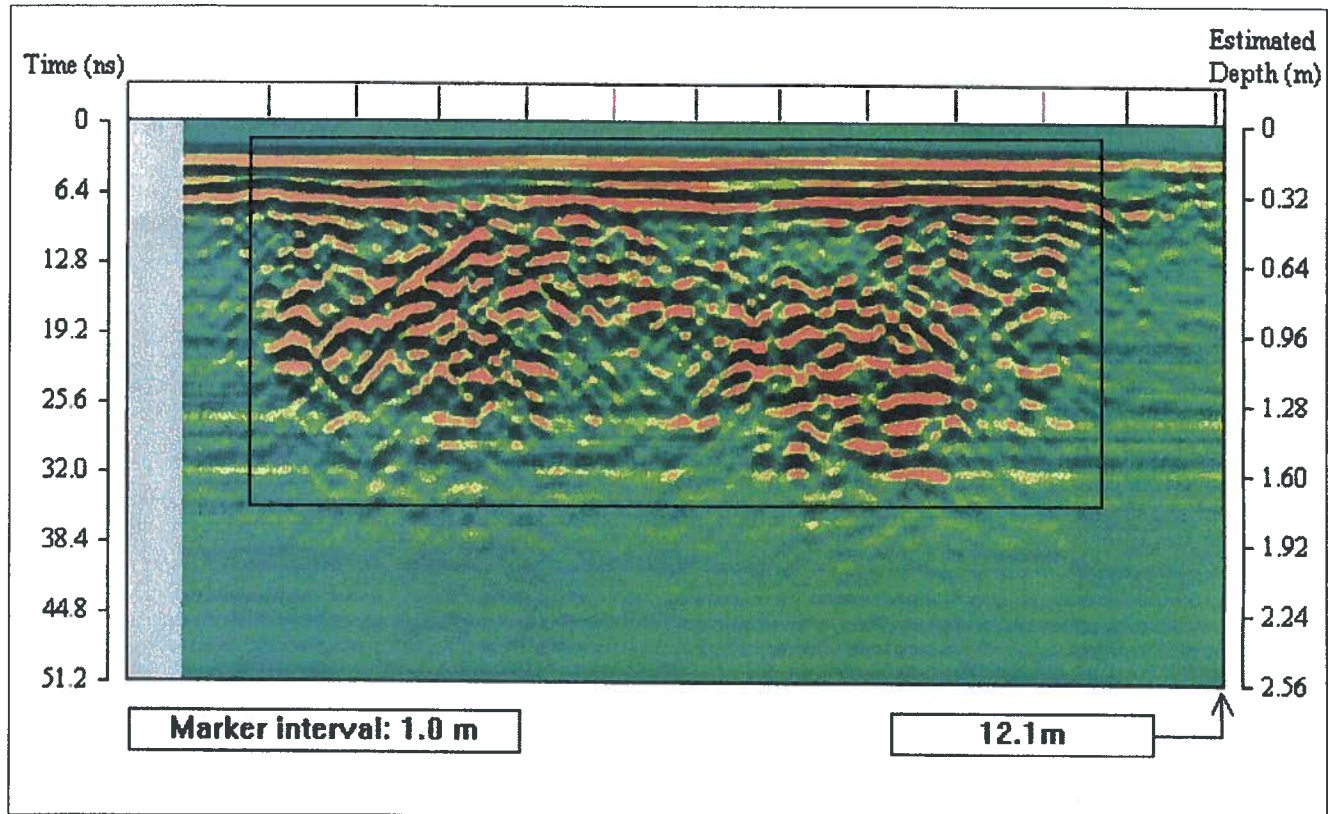




# SVY\_4.RAD

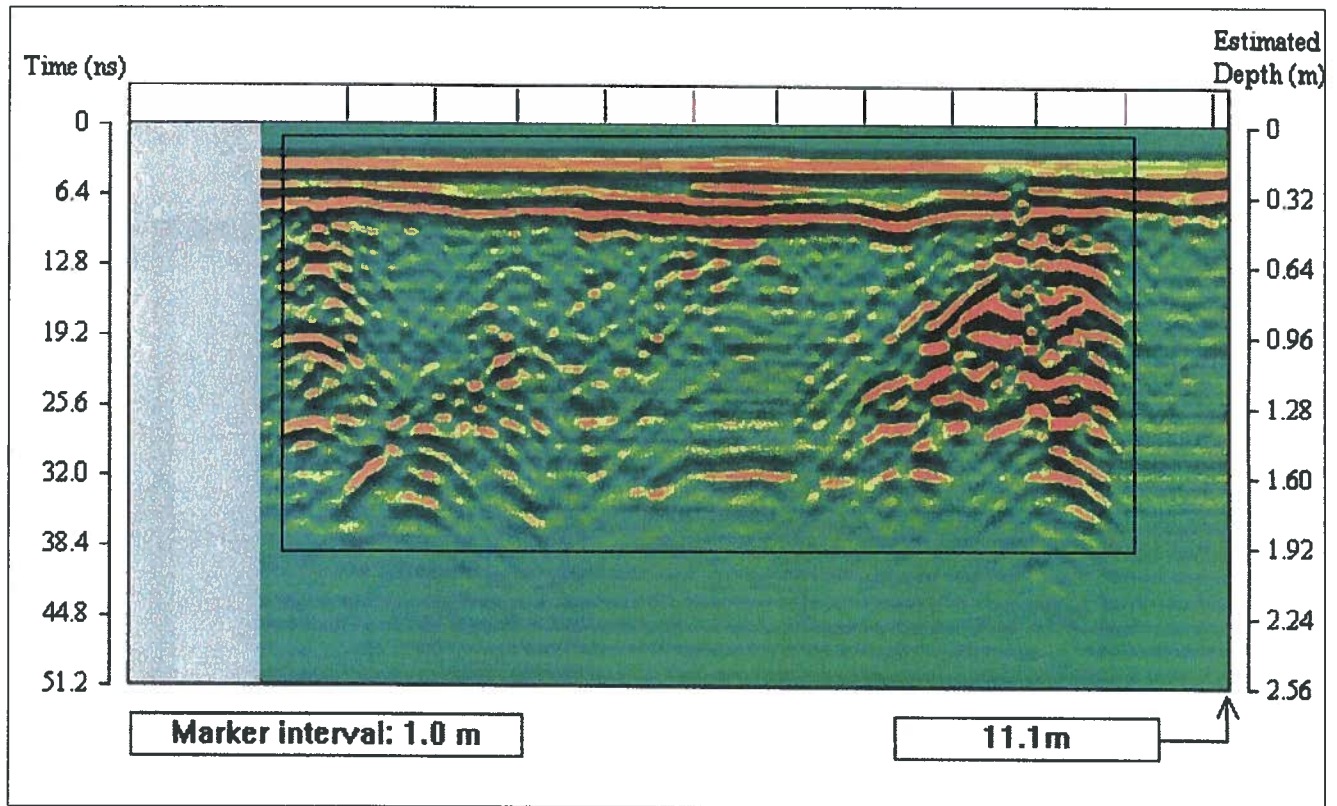


# SVY\_5.RAD

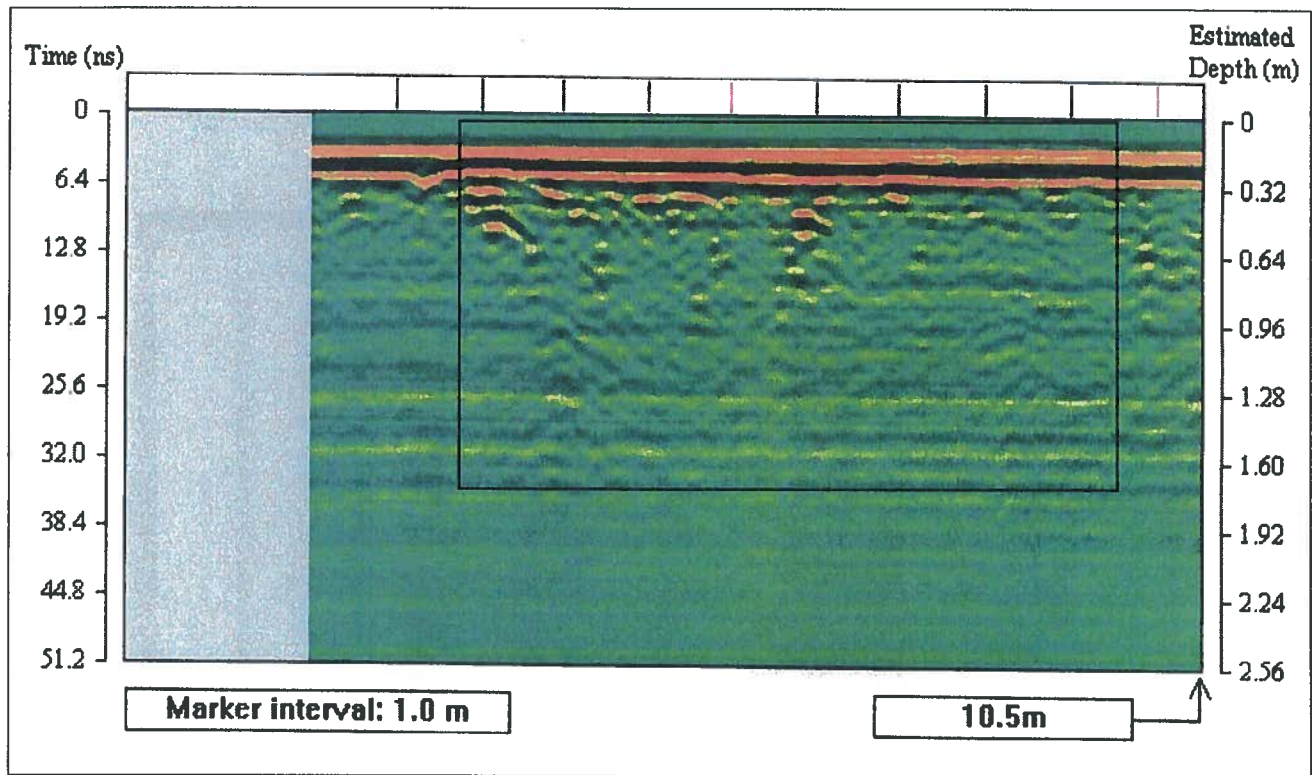




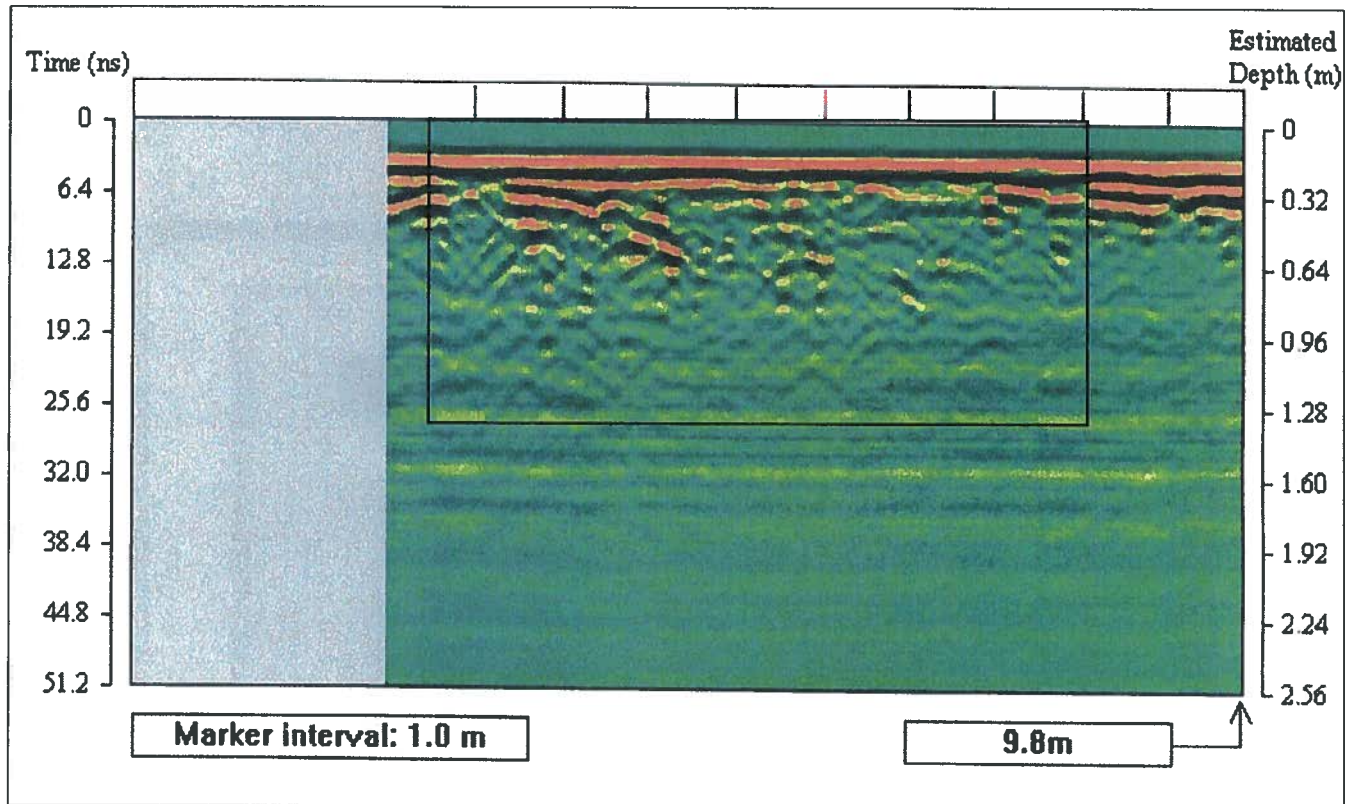
# SVY\_6.RAD



# SVY\_7.RAD

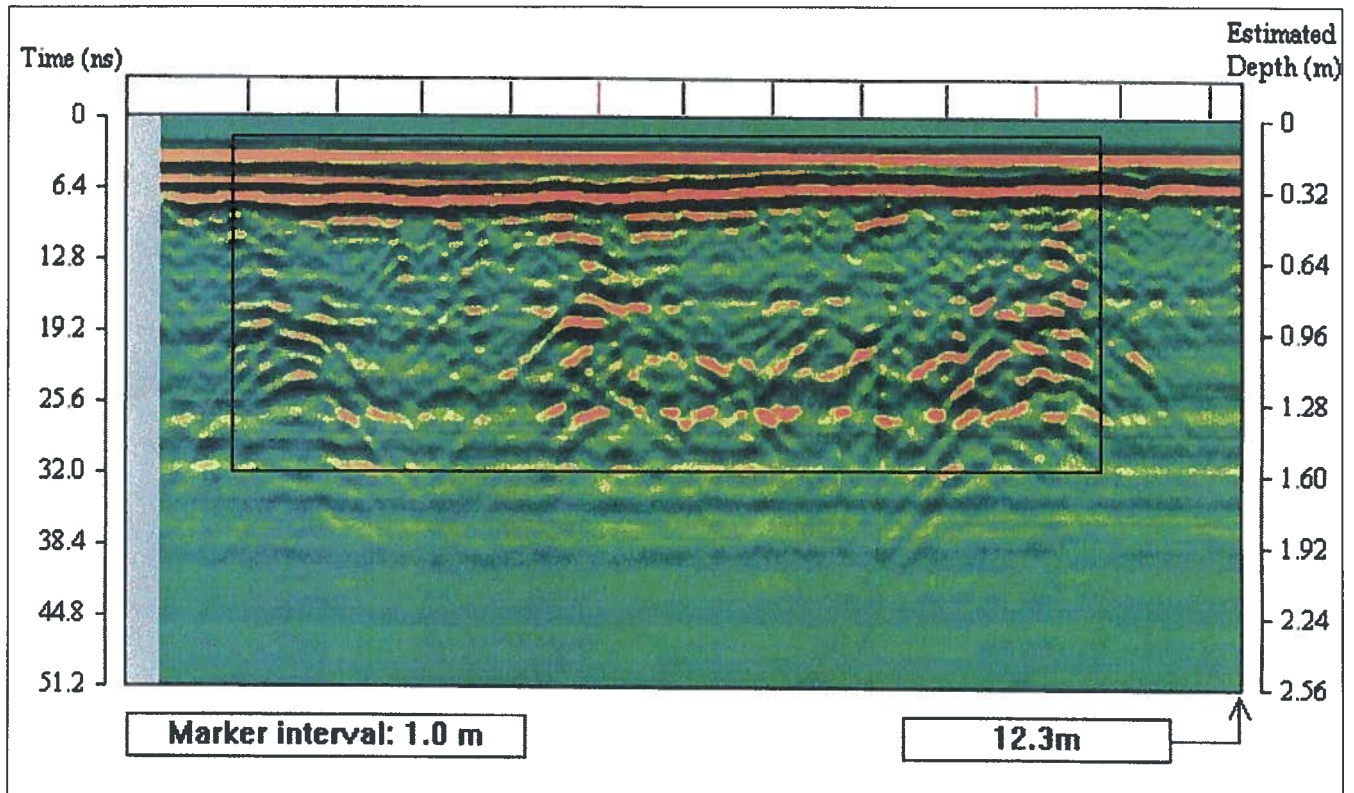


# SVY\_8.RAD





# SVY\_9.RAD



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## *Technical Summary*

Ground Penetrating Radar Investigation  
For:

301 West Lenawee  
Lansing, Michigan

A Ground Penetrating Radar (GPR) investigation was performed at 301 West Lenawee in Lansing, Michigan on February 15th and 16th, 2008. The purpose of the investigation was to determine and mark anomalies consistent with structure basements under a specific area of the parking lot on the exterior of the existing building.

A 500 MHz antenna was used to collect the data scanning to an approximate depth of 2.6 meters. The area scanned was delineated using a one meter interval grid pattern. This grid pattern would allow for objects consistent with a UST to be scanned. Multiple scans in a North – South and East – West direction was performed. All site conditions can also be confirmed in the photographs section of this report.

In the areas scanned **SEVEN** anomalies consistent with filled basements were observed. The approximate location of these anomalies were marked on site using pink marking paint. As well, measurements are noted in the site location section of this report.

During the course of this radar scan other anomalies deemed inconsistent with the desired targets may have been observed. Since these items were not considered a focus of the investigation, they are not included in this report.

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## ***Ground Penetrating Radar Update***

Did you know:

\* Radio frequency devices such as radar systems must be licensed with the FCC in order to be operated, imported, or sold in the United States?

\* Intentionally or unintentionally operating or marketing an unlicensed, non compliant radar system is prohibited under the Communications Act of 1934?

\* Penalties for operating, marketing, or importing unlicensed radar systems within the United States can include forfeiture, fines of up to \$10,000, or up to one year imprisonment?

Is your system compliant? Ours is. Work Smart, Inc. Exclusively uses US Radar equipment. US Radar is the only company to carry FCC approved radar systems as of February 2002.

Understanding the FCC rules applying to radio frequency devices has never been more important. We'd like to help you understand the basics:

Radar systems utilize multiple radio frequencies over extended areas. These frequencies have the potential to interfere with radio communications of all kinds if certain criteria are not met, as in the case of improperly shielded antennae which result in energy leakage.

Just because a company has been manufacturing, designing, selling, or leasing radar systems for many years doesn't mean their systems are compliant. Many companies have been operating for years with a total disregard for the US Code of Federal Regulations and FCC Rules. There are heavy penalties that can be levied against these companies, and if you own, lease or use their systems, you may incur penalties too.

The penalties imposed upon anyone who knowingly conducts business in violation of the US Code of Federal Regulations can include forfeiture, a fine of up to \$10,000 or up to one year in prison or both; these penalties increase with subsequent violations. In some cases, where FCC and/or international radio/wire communications regulations are violated and the United States becomes a party in the case, the person convicted of the violation will be subject to up to \$500 for each day during which the offense occurred plus any other penalties that are applicable.

How do you know if a radar system has met the requirements of and has been approved by the FCC? According to the US Code of Federal Regulations, all radio frequency devices must be "properly identified and labeled" as having been authorized by the FCC. If a company claims that their FCC approval is pending or if they are advertising or exhibiting systems without the proper FCC labeling, the following notice

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***Technician Verification***

Ground Penetrating Radar Investigation  
For:

301 West Lenawee  
Lansing, Michigan

I affirm that I *Michael P. McGarry* acting as an employee and representative of Work Smart, Inc. located in Paw Paw Michigan do here by affirm that I personally performed the Ground Penetrating Radar ( GPR ) scan at the above described location on February 15, 2008 and again on February 16, 2008.



Michael P. McGarry  
President

Date: February 17, 2008

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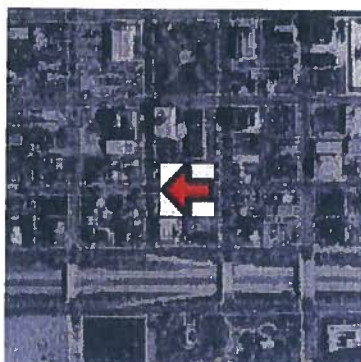
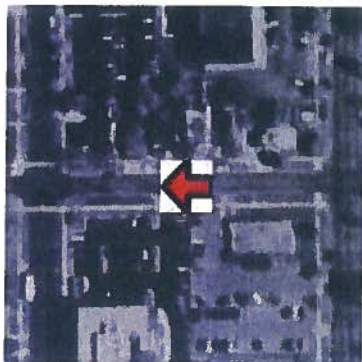
7 Technician Signature Page

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## AKT Project 301 West Lenawee, Lansing, MI

GrS Tagged Photo : RIMG0014\_tag.jpg



Title

AKT Project 301 West Lenawee, Lansing, MI

Location (Lat/Lon)	N 42° 43.642' W 084° 33.287'
Location (UTM)	16 N 0700189 4733440
Datum	WGS 84
Elevation	112 ft
Direction	272°
Time	02/16/2008 9:54:08 AM
Time Zone	(GMT-05:00) Eastern Standard Time
Camera Make	RICOH
Camera Model	Caplio 500SE
Camera Software	2.38 Rev 4
Original File	<a href="#">RIMG0014.JPG</a>



## AKT Project 301 West Lenawee, Lansing, MI

Grp Tagged Photo : RIMG0015\_tag.jpg



Title

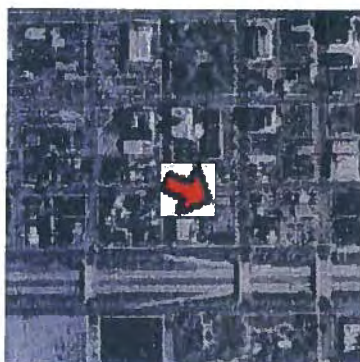
**AKT Project 301 West Lenawee, Lansing, MI**



Location (Lat/Lon)	<b>N 42° 43.643' W 084° 33.308'</b>
Location (UTM)	<b>16 N 0700161 4733440</b>
Datum	<b>WGS 84</b>
Elevation	<b>112 ft</b>
Direction	<b>117°</b>
Time	<b>02/16/2008 9:54:47 AM</b>
Time Zone	<b>(GMT-05:00) Eastern Standard Time</b>
Camera Make	<b>RICOH</b>
Camera Model	<b>Caplio 500SE</b>
Camera Software	<b>2.38 Rev 4</b>
Original File	<b><u><a href="#">RIMG0015.JPG</a></u></b>

## AKT Project 301 West Lenawee, Lansing, MI

Grs Tagged Photo : RIMG0016\_tag.jpg



Title	AKT Project 301 West Lenawee, Lansing, MI
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Location (Lat/Lon)	<b>N 42° 43.643' W 084° 33.308'</b>
Location (UTM)	<b>16 N 0700161 4733440</b>
Datum	<b>WGS 84</b>
Elevation	<b>112 ft</b>
Direction	<b>117°</b>
Time	<b>02/16/2008 9:54:47 AM</b>
Time Zone	<b>(GMT-05:00) Eastern Standard Time</b>
Camera Make	<b>RICOH</b>
Camera Model	<b>Caplio 500SE</b>
Camera Software	<b>2.38 Rev 4</b>
Original File	<b><u><a href="#">RIMG0016.JPG</a></u></b>



## AKT Project 301 West Lenawee, Lansing, MI

GPS Tagged Photo : RIMG0017\_tag.jpg



Title

AKT Project 301 West Lenawee, Lansing, MI

Location (Lat/Lon)	N 42° 43.651' W 084° 33.305'
Location (UTM)	16 N 0700165 4733455
Datum	WGS 84
Elevation	112 ft
Direction	2°
Time	02/16/2008 9:55:18 AM
Time Zone	(GMT-05:00) Eastern Standard Time
Camera Make	RICOH
Camera Model	Caplio 500SE
Camera Software	2.38 Rev 4
Original File	<a href="#">RIMG0017.JPG</a>



## AKT Project 301 West Lenawee, Lansing, MI

GPS Tagged Photo : RIMG0018\_tag.jpg



Title	AKT Project 301 West Lenawee, Lansing, MI
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Location (Lat/Lon)	N 42° 43.650' W 084° 33.302'
Location (UTM)	16 N 0700168 4733453
Datum	WGS 84
Elevation	112 ft
Direction	354°
Time	02/16/2008 9:55:23 AM
Time Zone	(GMT-05:00) Eastern Standard Time
Camera Make	RICOH
Camera Model	Caplio 500SE
Camera Software	2.38 Rev 4
Original File	<a href="#">RIMG0018.JPG</a>



## AKT Project 301 West Lenawee, Lansing, MI

Grp Tagged Photo : RIMG0019\_tag.jpg



Title	AKT Project 301 West Lenawee, Lansing, MI
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Location (Lat/Lon)	<b>N 42° 43.654' W 084° 33.301'</b>
Location (UTM)	<b>16 N 0700170 4733462</b>
Datum	<b>WGS 84</b>
Elevation	<b>112 ft</b>
Direction	<b>352°</b>
Time	<b>02/16/2008 9:55:29 AM</b>
Time Zone	<b>(GMT-05:00) Eastern Standard Time</b>
Camera Make	<b>RICOH</b>
Camera Model	<b>Caplio 500SE</b>
Camera Software	<b>2.38 Rev 4</b>
Original File	<b><u><a href="#">RIMG0019.JPG</a></u></b>



## AKT Project 301 West Lenawee, Lansing, MI

GrS Tagged Photo : RIMG0020\_tag.jpg



Title	AKT Project 301 West Lenawee, Lansing, MI
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Location (Lat/Lon)	N 42° 43.687' W 084° 33.408'
Location (UTM)	16 N 0700022 4733517
Datum	WGS 84
Elevation	886 ft
Direction	346°
Time	02/16/2008 9:55:34 AM
Time Zone	(GMT-05:00) Eastern Standard Time
Camera Make	RICOH
Camera Model	Caplio 500SE
Camera Software	2.38 Rev 4
Original File	<a href="#">RIMG0020.JPG</a>



## AKT Project 301 West Lenawee, Lansing, MI

Grp Tagged Photo : RIMG0021\_tag.jpg



Title	AKT Project 301 West Lenawee, Lansing, MI
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Location (Lat/Lon)	<b>N 42° 43.693' W 084° 33.408'</b>
Location (UTM)	<b>16 N 0700021 4733528</b>
Datum	<b>WGS 84</b>
Elevation	<b>853 ft</b>
Direction	<b>346°</b>
Time	<b>02/16/2008 9:55:42 AM</b>
Time Zone	<b>(GMT-05:00) Eastern Standard Time</b>
Camera Make	<b>RICOH</b>
Camera Model	<b>Caplio 500SE</b>
Camera Software	<b>2.38 Rev 4</b>
Original File	<b><u><a href="#">RIMG0021.JPG</a></u></b>



## AKT Project 301 West Lenawee, Lansing, MI

GPS Tagged Photo : RIMG0022\_tag.jpg



Title

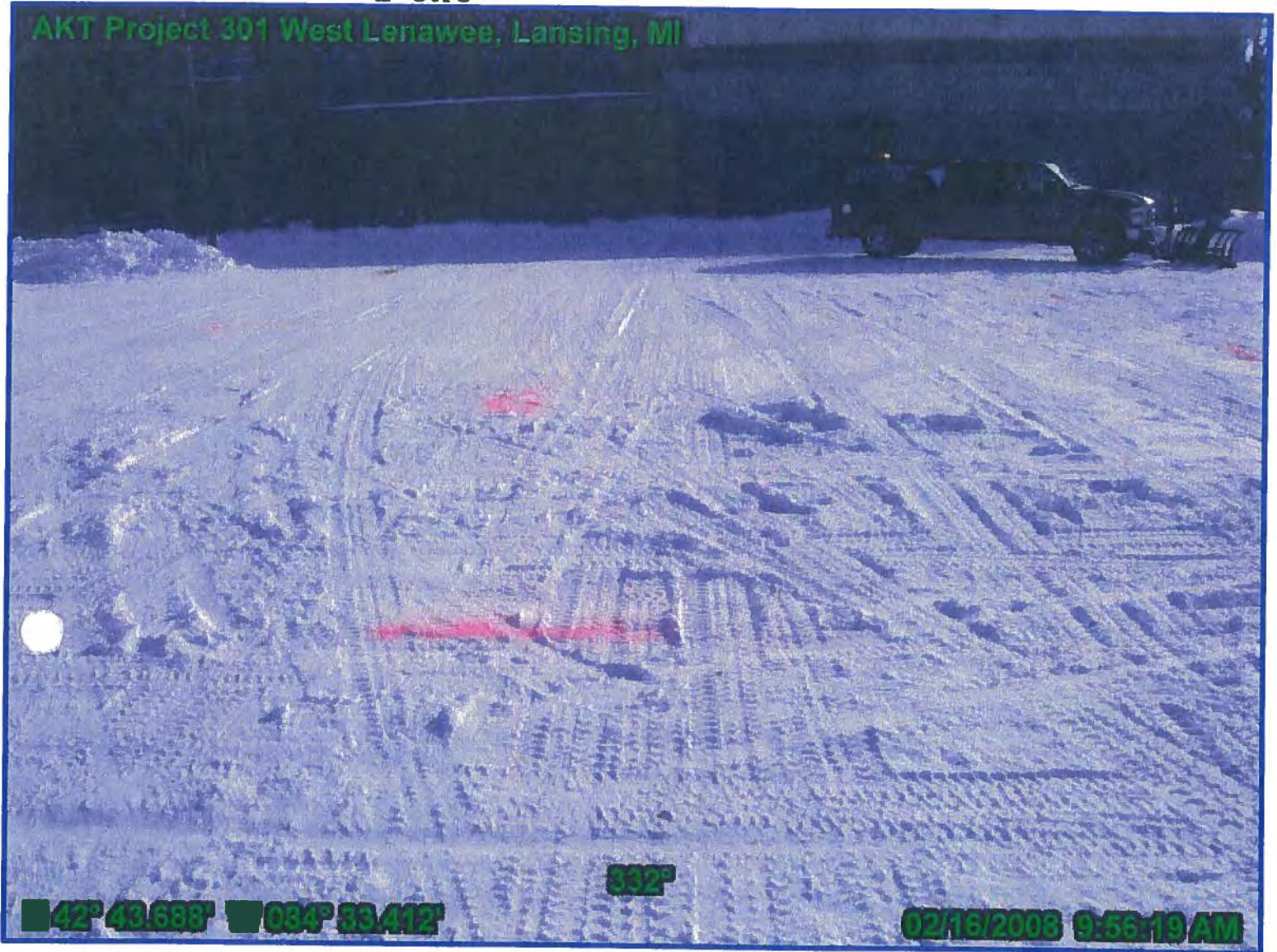
AKT Project 301 West Lenawee, Lansing, MI

Location (Lat/Lon)	N 42° 43.687' W 084° 33.417'
Location (UTM)	16 N 0700009 4733518
Datum	WGS 84
Elevation	889 ft
Direction	11°
Time	02/16/2008 9:56:12 AM
Time Zone	(GMT-05:00) Eastern Standard Time
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Camera Model	Caplio 500SE
Camera Software	2.38 Rev 4
Original File	<a href="#">RIMG0022.JPG</a>



## AKT Project 301 West Lenawee, Lansing, MI

GrS Tagged Photo : RIMG0023\_tag.jpg



Title

AKT Project 301 West Lenawee, Lansing, MI

Location (Lat/Lon)	N 42° 43.688' W 084° 33.412'
Location (UTM)	16 N 0700016 4733519
Datum	WGS 84
Elevation	906 ft
Direction	332°
Time	02/16/2008 9:56:19 AM
Time Zone	(GMT-05:00) Eastern Standard Time
Camera Make	RICOH
Camera Model	Caplio 500SE
Camera Software	2.38 Rev 4
Original File	<a href="#">RIMG0023.JPG</a>



## AKT Project 301 West Lenawee, Lansing, MI

GrS Tagged Photo : RIMG0024\_tag.jpg



Title

AKT Project 301 West Lenawee, Lansing, MI

Location (Lat/Lon)	N 42° 43.695' W 084° 33.414'
Location (UTM)	16 N 0700013 4733532
Datum	WGS 84
Elevation	876 ft
Direction	194°
Time	02/16/2008 9:56:51 AM
Time Zone	(GMT-05:00) Eastern Standard Time
Camera Make	RICOH
Camera Model	Caplio 500SE
Camera Software	2.38 Rev 4
Original File	<a href="#">RIMG0024.JPG</a>



## AKT Project 301 West Lenawee, Lansing, MI

GPS Tagged Photo : RIMG0025\_tag.jpg



Title

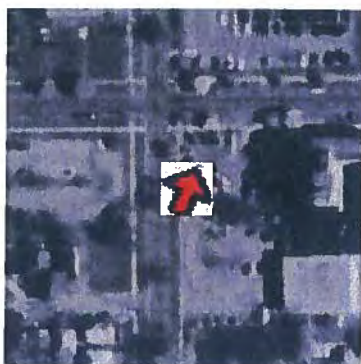
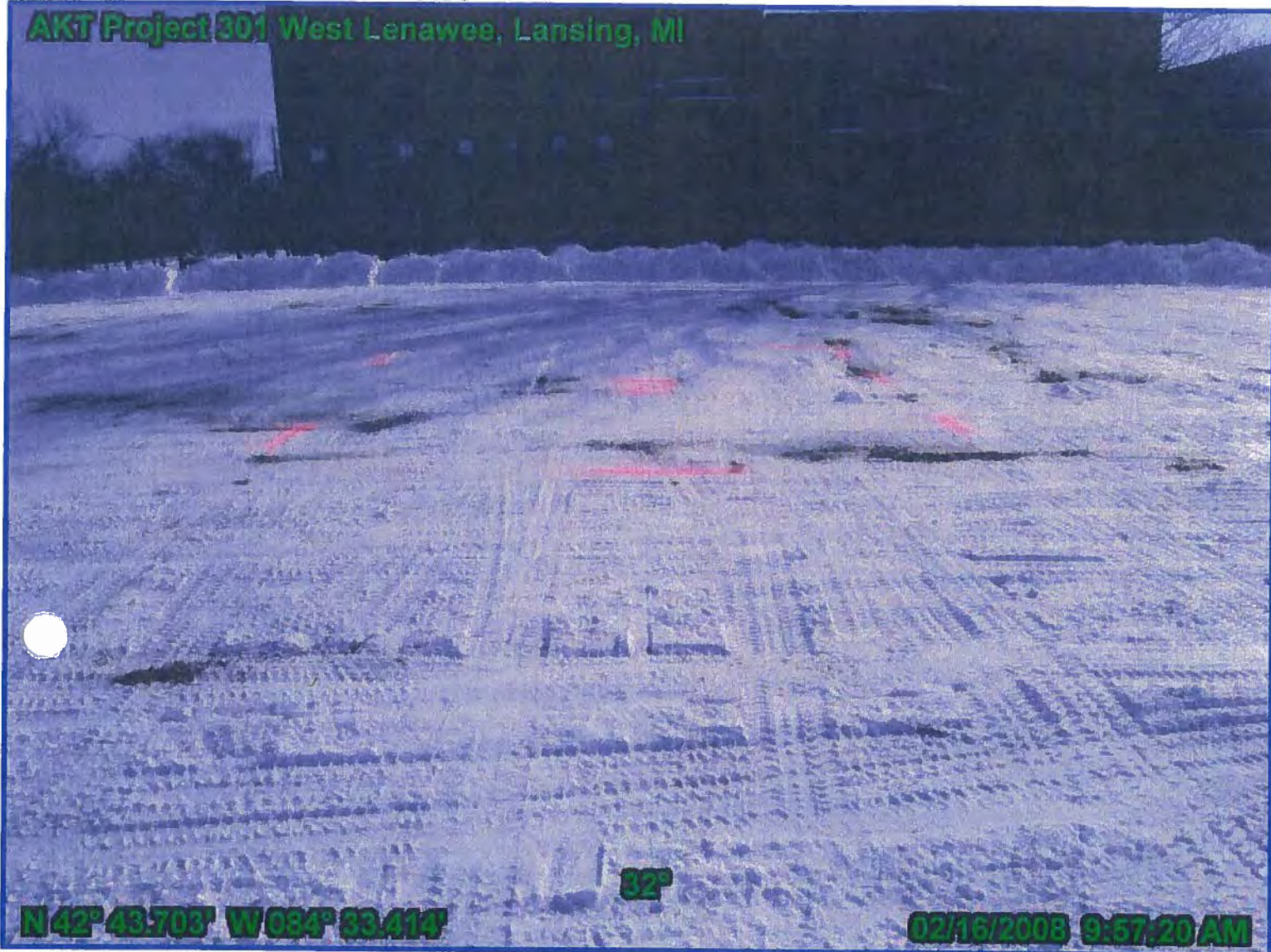
AKT Project 301 West Lenawee, Lansing, MI

Location (Lat/Lon)	N 42° 43.695' W 084° 33.414'
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Elevation	876 ft
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Camera Model	Caplio 500SE
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Original File	<a href="#">RIMG0025.JPG</a>



## AKT Project 301 West Lenawee, Lansing, MI

GPS Tagged Photo : RIMG0026\_tag.jpg



Title

AKT Project 301 West Lenawee, Lansing, MI

Location (Lat/Lon)	N 42° 43.703' W 084° 33.414'
Location (UTM)	16 N 0700012 4733547
Datum	WGS 84
Elevation	906 ft
Direction	32°
Time	02/16/2008 9:57:20 AM
Time Zone	(GMT-05:00) Eastern Standard Time
Camera Make	RICOH
Camera Model	Caplio 500SE
Camera Software	2.38 Rev 4
Original File	<a href="#">RIMG0026.JPG</a>



## AKT Project 301 West Lenawee, Lansing, MI

Gr's Tagged Photo : RIMG0027\_tag.jpg



Title

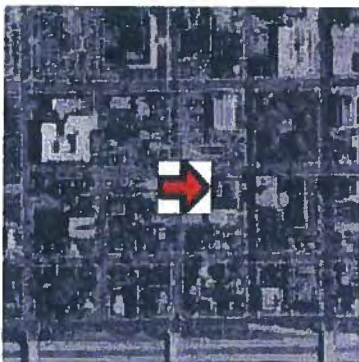
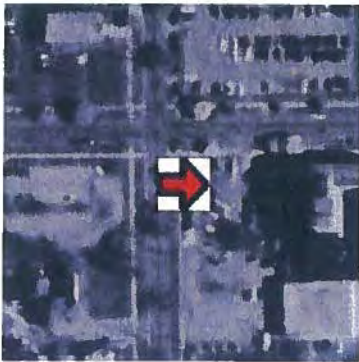
AKT Project 301 West Lenawee, Lansing, MI

Location (Lat/Lon)	N 42° 43.703' W 084° 33.414'
Location (UTM)	16 N 0700012 4733547
Datum	WGS 84
Elevation	906 ft
Direction	358°
Time	02/16/2008 9:57:20 AM
Time Zone	(GMT-05:00) Eastern Standard Time
Camera Make	RICOH
Camera Model	Caplio 500SE
Camera Software	2.38 Rev 4
Original File	<a href="#">RIMG0027.JPG</a>



# AKT Project 301 West Lenawee, Lansing, MI

GrS Tagged Photo : RIMG0028\_tag.jpg



Title	AKT Project 301 West Lenawee, Lansing, MI
-------	---

Location (Lat/Lon)	N 42° 43.710' W 084° 33.415'
Location (UTM)	16 N 0700012 4733561
Datum	WGS 84
Elevation	873 ft
Direction	91°
Time	02/16/2008 9:57:46 AM
Time Zone	(GMT-05:00) Eastern Standard Time
Camera Make	RICOH
Camera Model	Caplio 500SE
Camera Software	2.38 Rev 4
Original File	<a href="#">RIMG0028.JPG</a>



## AKT Project 301 West Lenawee, Lansing, MI

GrS Tagged Photo : RIMG0029\_tag.jpg



Title	AKT Project 301 West Lenawee, Lansing, MI
-------	---

Location (Lat/Lon)	N 42° 43.708' W 084° 33.413'
Location (UTM)	16 N 0700014 4733556
Datum	WGS 84
Elevation	869 ft
Direction	57°
Time	02/16/2008 9:57:49 AM
Time Zone	(GMT-05:00) Eastern Standard Time
Camera Make	RICOH
Camera Model	Caplio 500SE
Camera Software	2.38 Rev 4
Original File	<a href="#">RIMG0029.JPG</a>



## AKT Project 301 West Lenawee, Lansing, MI

GPS Tagged Photo : RIMG0030\_tag.jpg



Title

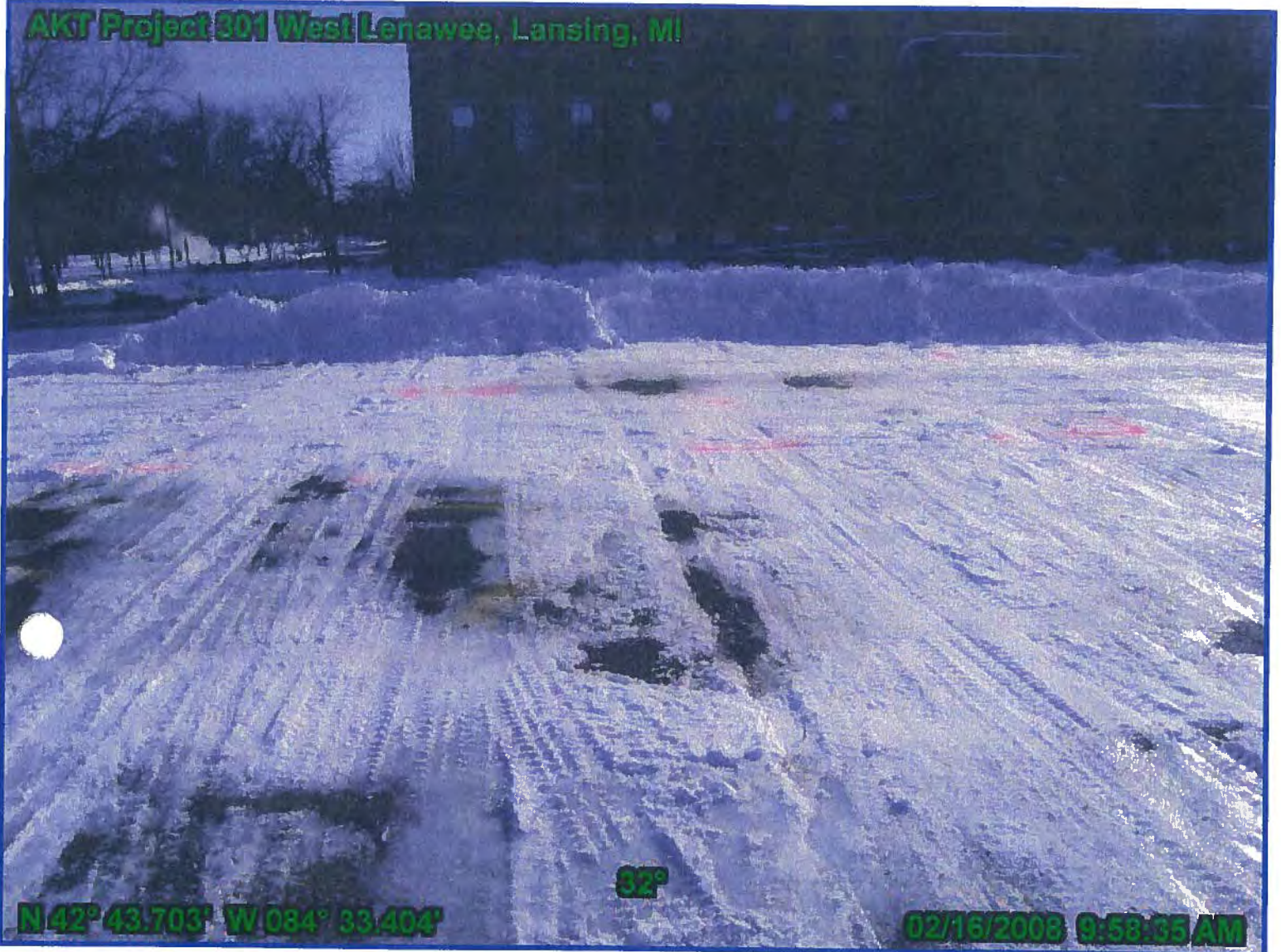
AKT Project 301 West Lenawee, Lansing, MI

Location (Lat/Lon)	N 42° 43.713' W 084° 33.408'
Location (UTM)	16 N 0700021 4733567
Datum	WGS 84
Elevation	869 ft
Direction	35°
Time	02/16/2008 9:58:12 AM
Time Zone	(GMT-05:00) Eastern Standard Time
Camera Make	RICOH
Camera Model	Caplio 500SE
Camera Software	2.38 Rev 4
Original File	<a href="#">RIMG0030.JPG</a>



## AKT Project 301 West Lenawee, Lansing, MI

Grp Tagged Photo : RIMG0031\_tag.jpg



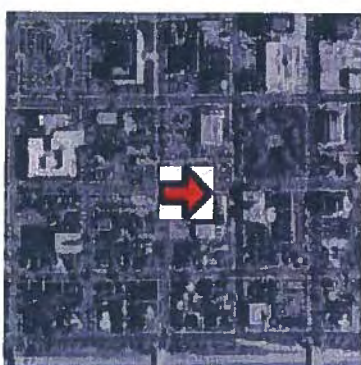
Title	AKT Project 301 West Lenawee, Lansing, MI
-------	---

Location (Lat/Lon)	N 42° 43.703' W 084° 33.404'
Location (UTM)	16 N 0700027 4733547
Datum	WGS 84
Elevation	860 ft
Direction	32°
Time	02/16/2008 9:58:35 AM
Time Zone	(GMT-05:00) Eastern Standard Time
Camera Make	RICOH
Camera Model	Caplio 500SE
Camera Software	2.38 Rev 4
Original File	<a href="#">RIMG0031.JPG</a>



## AKT Project 301 West Lenawee, Lansing, MI

GPS Tagged Photo : RIMG0032\_tag.jpg



Title

AKT Project 301 West Lenawee, Lansing, MI

maintenance Shop		Sizes								Totals
		12" or More	10"	8"	6"	4"	3"	2"	1-1/2" or Less	
Number of Lines										
Type of Fitting	Elbows								14	14
	"Y"									
	"T"						4		1	5
	Valves									
	P-Trap									
	Floor Flange									
	Clean Outs									
	Expansion Joints									
	Coupling									
Pipe Wrap in LF							30		43	73
Transite Pipe in LF										
Flooring in SF										
Ceiling and/or Insulation LF										
Acoustical treatment or other insulating materials in SF										
Transite Board in SF										

Comments:

Pipe chase behind boys showers		Sizes								Totals	
		12" or More	10"	8"	6"	4"	3"	2"	1-1/2"		1-1/4" or Less
Number of Lines											
Type of fitting	Elbows						1	7		8	16
	"Y"										
	"T"							1		10	11
	Valves										
	P-Trap										
	Floor Flange										
	Clean Outs										
	Expansion Joints										
	Coupling										
Pipe Wrap in LF							15	8		37	60
Transite Pipe in LF											
Flooring in SF											
Ceiling and/or Insulation LF											
Acoustical treatment or other insulating materials in SF											
Transite Board in SF											

Comments:

Air Handler (also Room near men's locker Pipe Chase)		Sizes								Totals	
		12" or More	10"	8"	6"	4"	3"	2"	1-1/2"		1-1/4" or Less
Number of Lines											
Type of Fitting	Elbows				1		19	14	6	3	43
	"Y"										
	"T"				4		6	12			22
	Valves						5				5
	P-Trap										
	Floor Flange										
	Clean Outs										
	Expansion Joints										
	Coupling										
Pipe Wrap in LF					82	50	126	114	30	38	440
Transite Pipe in LF											
Flooring in SF											
Ceiling and/or Insulation LF											
Acoustical treatment or other insulating materials in SF											
Transite Board in SF											

Comments:



Sump pump room (basement)		Sizes								Totals	
		12" or More	10"	8"	6"	4"	3"	2"	1-1/2"		1-1/4" or Less
Number of Lines											
Type of Fitting	Elbows						3			16	19
	"Y"										
	"T"						2				2
	Valves										
	P-Trap										
	Floor Flange										
	Clean Outs										
	Expansion Joints										
	Coupling										
Pipe Wrap in LF							25			73	98
Transite Pipe in LF											
Flooring in SF											
Ceiling and/or Insulation LF											
Acoustical treatment or other insulating materials in SF											
Transite Board in SF											
Heat Exchangers		11.3 s.f. (sub basement)									

Comments:

Inbetween walls over Court #8		Sizes								Totals
		12" or More	10"	8"	6"	4"	3"	2"	1-1/2"	
Number of Lines										
Type of Fitting	Elbows					3	6	3	2	14
	"Y"									
	"T"						5			5
	Valves									
	P-Trap									
	Floor Flange									
	Clean Outs									
	Expansion Joints									
	Coupling									
Pipe Wrap in LF						60	45	50	30	185
Transite Pipe in LF										
Flooring in SF										
Ceiling and/or Insulation LF										
Acoustical treatment or other insulating materials in SF										
Transite Board in SF										

Comments:

Multipurpose Bath room		Sizes								Totals	
		12" or More	10"	8"	6"	4"	3"	2"	1-1/2"		1-1/4" or Less
Number of Lines											
Type of Fitting	Elbows									11	11
	"Y"										
	"T"						1			2	3
	Valves										
	P-Trap										
	Floor Flange										
	Clean Outs										
	Expansion Joints										
	Coupling										
Pipe Wrap in LF							14			18	32
Transite Pipe in LF											
Flooring in SF											
Ceiling and/or Insulation LF											
Acoustical treatment or other insulating materials in SF											
Transite Board in SF											

Comments:

Multipurpose Room East		Sizes								Totals	
		12" or More	10"	8"	6"	4"	3"	2"	1-1/2"		1-1/4" or Less
Number of Lines											
Type of Fitting	Elbows					1	1			50	52
	"Y"										
	"T"					7	7			1	15
	Valves					1					1
	P-Trap										
	Floor Flange										
	Clean Outs										
	Expansion Joints										
	Coupling										
Pipe Wrap in LF						36	48			87	171
Transite Pipe in LF											
Flooring in SF											
Ceiling and/or Insulation LF											
Acoustical treatment or other insulating materials in SF											
Transite Board in SF											

Comments:

Main Steam Shut-off		Sizes								Totals
		12" or More	10"	8"	6"	4"	3"	2"	1-1/2"	
Number of Lines										
Type of Fitting	Elbows			3		1		3		7
	"Y"									
	"T"					2				2
	Valves			2				1		3
	P-Trap									
	Floor Flange									
	Clean Outs									
	Expansion Joints									
	Coupling									
	End caps			1						1
Pipe Wrap in LF				15		8		5		28
Transite Pipe in LF										
Flooring in SF										
Ceiling and/or Insulation LF										
Acoustical treatment or other insulating materials in SF										
Transite Board in SF										

Comments:

Multipurpose Room West		Sizes								Totals	
		12" or More	10"	8"	6"	4"	3"	2"	1-1/2"		1-1/4" or Less
Number of Lines											
Type of Fitting	Elbows				2	10	1	5		31	49
	"Y"										
	"T"				10	7	5	3		1	26
	Valves				10	4	1			1	16
	P-Trap										
	Floor Flange										
	Clean Outs										
	Expansion Joints										
	Coupling										
	Hangers				1	3				5	9
Pipe Wrap in LF					52	54	63	20		68	257
Transite Pipe in LF											
Flooring in SF											
Ceiling and/or Insulation LF											
Acoustical treatment or other insulating materials in SF											
Transite Board in SF											

Comments:



Basement  
Key shop

Sizes

Totals

12"  
or  
More

10"

8"

6"

4"

3"

2"

1-1/2"

1-1/4"  
or  
Less

Number of Lines

Type of Fitting

Elbows

"Y"

"T"

Valves

P-Trap

Floor Flange

Clean Outs

Expansion Joints

Coupling

Pipe Wrap in LF

Transite Pipe in LF

Flooring in SF

Ceiling and/or Insulation LF

Acoustical treatment or  
other insulating materials  
in SF

Transite Board in SF

Comments:

8 12 10 30

Air Compressor Room		Sizes								Totals
		12" or More	10"	8"	6"	4"	3"	2"	1-1/2"	
Number of Lines										
Type of Fitting	Elbows									
	"Y"									
	"T"									
	Valves									
	P-Trap									
	Floor Flange									
	Clean Outs									
	Expansion Joints									
	Coupling									
	Hanger								2	2
Pipe Wrap in LF									10	10
Transite Pipe in LF										
Flooring in SF										
Ceiling and/or Insulation LF										
Acoustical treatment or other insulating materials in SF										
Transite Board in SF										

Comments:

Old Pantry		Sizes								Totals	
		12" or More	10"	8"	6"	4"	3"	2"	1-1/2"		1-1/4" or Less
Number of Lines											
Type of Fitting	Elbows							3		5	8
	"Y"										
	"T"							1			1
	Valves							1		2	3
	P-Trap										
	Floor Flange										
	Clean Outs										
	Expansion Joints										
	Coupling										
Pipe Wrap in LF								25			25
Transite Pipe in LF											
Flooring in SF											
Ceiling and/or Insulation LF											
Acoustical treatment or other insulating materials in SF											
Transite Board in SF											

Comments:

Basement Hallway		Sizes								Totals	
		12" or More	10"	8"	6"	4"	3"	2"	1-1/2" or Less		
Number of Lines											
Type of Fitting	Elbows						9	2	3	8	22
	"Y"										
	"T"					1	2		1		4
	Valves								1		1
	P-Trap										
	Floor Flange										
	Clean Outs										
	Expansion Joints										
	Coupling										
Pipe Wrap in LF					8	8	45		32	21	114
Transite Pipe in LF											
Flooring in SF											
Ceiling and/or Insulation LF											
Acoustical treatment or other insulating materials in SF											
Transite Board in SF											

Comments:

Steve Brockway's Old Office		Sizes								Totals	
		12" or More	10"	8"	6"	4"	3"	2"	1-1/2"		1-1/4" or Less
Number of Lines											
Type of Fitting	Elbows						2	3		6	11
	"Y"										
	"T"						3			5	8
	Valves										
	P-Trap										
	Floor Flange										
	Clean Outs										
	Expansion Joints										
	Coupling										
Pipe Wrap in LF							14	8		30	52
Transite Pipe in LF											
Flooring in SF											
Ceiling and/or Insulation LF											
Acoustical treatment or other insulating materials in SF											
Transite Board in SF											

Comments:

**FIRST FLOOR**



Unused locker room by pool Supply closet		Sizes								Totals	
		12" or More	10"	8"	6"	4"	3"	2"	1-1/2"		1-1/4" or Less
Number of Lines											
Type of Fitting	Elbows								2	6	8
	"Y"										
	"T"								2	8	10
	Valves										
	P-Trap										
	Floor Flange										
	Clean Outs										
	Expansion Joints										
	Coupling										
Pipe Wrap in LF									7	35	42
Transite Pipe in LF											
Flooring in SF											
Ceiling and/or Insulation LF											
Acoustical treatment or other insulating materials in SF											
Transite Board in SF											
note :		Scrap lagging									

Comments:

Pipe Chase Behind youth Lobby bathroom		Sizes								Totals
		12" or More	10"	8"	6"	4"	3"	2"	1-1/2" or Less	
Number of Lines										
Type of Fitting	Elbows									
	"Y"									
	"T"									
	Valves									
	P-Trap									
	Floor Flange									
	Clean Outs									
	Expansion Joints									
	Coupling									
Pipe Wrap in LF										
Transite Pipe in LF										
Flooring in SF										
Ceiling and/or Insulation LF										
Acoustical treatment or other insulating materials in SF										
Transite Board in SF										
note		Scrap lagging ~ 10'								10'

Comments:

Attic 1st floor		Sizes								Totals	
		12" or More	10"	8"	6"	4"	3"	2"	1-1/2"		1-1/4" or Less
Number of Lines											
Type of Fitting	Elbows					3	16	22	36	52	129
	"Y"										
	"T"						4	9	22	6	41
	Valves						2		1		3
	P-Trap										
	Floor Flange										
	Clean Outs										
	Expansion Joints										
	Coupling										
Pipe Wrap in LF						15	145	164	278	282	884
Transite Pipe in LF											
Flooring in SF											
Ceiling and/or Insulation LF											
Acoustical treatment or other insulating materials in SF											
Transite Board in SF											

Comments:

**SECOND FLOOR**

Pipe Chase 2nd floor women's lockers		Sizes								Totals	
		12" or More	10"	8"	6"	4"	3"	2"	1-1/2"		1-1/4" or Less
Number of Lines											
Type of Fitting	Elbows									5	5
	"Y"										
	"T"								3		3
	Valves										
	P-Trap										
	Floor Flange										
	Clean Outs										
	Expansion Joints										
	Coupling										
Pipe Wrap in LF									8	4	12
Transite Pipe in LF											
Flooring in SF											
Ceiling and/or Insulation LF											
Acoustical treatment or other insulating materials in SF											
Transite Board in SF											

Comments:

Large Gym		Sizes								Totals
		12" or More	10"	8"	6"	4"	3"	2"	1-1/2"	
Number of Lines										
Type of Fitting	Elbows				3					
	"Y"									
	"T"				2					
	Valves									
	P-Trap									
	Floor Flange									
	Clean Outs									
	Expansion Joints									
	Coupling									
Pipe Wrap in LF					98					
Transite Pipe in LF										
Flooring in SF										
Ceiling and/or Insulation LF										
Acoustical treatment or other insulating materials in SF										
Transite Board in SF										

Comments:



# Radiators 2nd floors

Sizes									Totals
12" or More	10"	8"	6"	4"	3"	2"	1-1/2"	1-1/4" or Less	
								12	12
								4	4
									</

Comments:

**RESIDENCE FLOORS**

---

Radiators  
For Residence  
Floors 3,4,5,6

Radiators For Residence Floors 3,4,5,6		Sizes								Totals	
		12" or More	10"	8"	6"	4"	3"	2"	1-1/2"		1-1/4" or Less
Number of Lines											
Type of Fitting	Elbows								1000	1000	
	"Y"										
	"T"										
	Valves										
	P-Trap										
	Floor Flange										
	Clean Outs										
	Expansion Joints										
	Coupling										
Pipe Wrap in LF									384	1200	1584
Transite Pipe in LF											
Flooring in SF											
Ceiling and/or Insulation LF											
Acoustical treatment or other insulating materials in SF											
Transite Board in SF											

Comments:

# Pipe Chase

between sink and  
showers

3rd, 4th, 5th, 6th floors

## Sizes

## Totals

12"  
or  
More

10"

8"

6"

4"

3"

2"

1-1/2"

1-1/4"  
or  
Less

### Number of Lines

Type of Fitting

Elbows

"Y"

"T"

Valves

P-Trap

Floor Flange

Clean Outs

Expansion Joints

Coupling

52 52

8 28 36

Pipe Wrap in LF

Transite Pipe in LF

Flooring in SF

Ceiling and/or Insulation LF

Acoustical treatment or  
other insulating materials  
in SF

Transite Board in SF

24 192 216

Comments:

Pipe Chase west side of bath room 3rd, 4th, 5th, 6th floors		Sizes								Totals
		12" or More	10"	8"	6"	4"	3"	2"	1-1/2" or Less	
Number of Lines										
Type of Fitting	Elbows							4	24	28
	"Y"									
	"T"							12	8	20
	Valves									
	P-Trap									
	Floor Flange									
	Clean Outs									
	Expansion Joints									
	Coupling									
Pipe Wrap in LF								64	56	120
Transite Pipe in LF										
Flooring in SF										
Ceiling and/or Insulation LF										
Acoustical treatment or other insulating materials in SF										
Transite Board in SF										

Comments:

Pipe chase SE Residence 1-floors 3rd, 4th, 5th, 6th		Sizes								Totals	
		12" or More	10"	8"	6"	4"	3"	2"	1-1/2"		1-1/4" or Less
Number of Lines											
Type of Fitting	Elbows							12	4	24	40
	"Y"										
	"T"							12	4	12	28
	Valves										
	P-Trap										
	Floor Flange										
	Clean Outs										
	Expansion Joints										
	Coupling										
Pipe Wrap in LF								152	32	60	244
Transite Pipe in LF											
Flooring in SF											
Ceiling and/or Insulation LF											
Acoustical treatment or other insulating materials in SF											
Transite Board in SF											

Comments:



# Pipe Chase

## Sizes

## Totals

3rd, 4th, 5th, 6th

12"  
or  
More

10"

8"

6"

4"

3"

2"

1-1/2"

1-1/4"  
or  
Less

Number of Lines

Type of Fitting

Elbows

"Y"

"T"

Valves

P-Trap

Floor Flange

Clean Outs

Expansion Joints

Coupling

4

36 40

12

20 32

Pipe Wrap in LF

8 60 92

Transite Pipe in LF

Flooring in SF

Ceiling and/or Insulation LF

Acoustical treatment or  
other insulating materials  
in SF

Transite Board in SF

Comments:

ATTIC

Attic  
6th Floor

Sizes

12"  
or  
More

10"

8"

6"

4"

3"

2"

1-1/2"  
or  
Less

Totals

Number of Lines

Type of Fitting

Elbows

"Y"

"T"

Valves

P-Trap

Floor Flange

Clean Outs

Expansion Joints

Coupling

1

14

401

15

431

24

24

8

3

11

Pipe Wrap in LF

92

521

296

20

929

Transite Pipe in LF

Flooring in SF

Ceiling and/or Insulation LF

Acoustical treatment or  
other insulating materials  
in SF

Transite Board in SF

Comments:

**APPENDIX B**

**ASBESTOS BULK SAMPLE RESULTS  
FROM DECEMBER 4, 1990 SAMPLING**

SEG LABORATORIES, INC.

DATE: December 18, 1990

## ASBESTOS REPORT BULK ANALYSIS

NAME: SEG Engineers & Consultants, Inc.  
ADDRESS: 1120 May Street  
Lansing, MI 48906  
Attention: Peter F. Cole, P.E.

PO #/JOB #: 14002A (YMCA, 301 W. Lenawee)

SEG#: 22317

SAMPLE DESCRIPTION: Sub-basement, Wall  
Plaster, Handball Court 8

CLIENT/FIELD ID#: 01  
DATE COLLECTED: December 4, 1990  
COLLECTED BY: J. Hartner

### RESULT

Polarized Light Microscopy  
Dispersion Staining Technique

### ASBESTOS (%)

NONE DETECTED

### NON-ASBESTOS (%)

Cellulose	5
Non-Fibrous Material	95

Signature: Marlene J. Kane

Marlene J. Kane

Method # EPA-600/M4-82-020

SEG LABORATORIES, INC.

DATE: December 18, 1990

ASBESTOS REPORT  
BULK ANALYSIS

NAME: SEG Engineers & Consultants, Inc.  
ADDRESS: 1120 May Street  
Lansing, MI 48906  
Attention: Peter F. Cole, P.E.

PO #/JOB #: 14002A (YMCA, 301 W. Lenawee)

SEG#: 22319

SAMPLE DESCRIPTION: Second Floor, Avitan  
Storage Room, Wall Plaster over Lathe

CLIENT/FIELD ID#: 03  
DATE COLLECTED: December 4, 1990  
COLLECTED BY: J. Hartner

RESULT

Polarized Light Microscopy  
Dispersion Staining Technique

ASBESTOS (%)

NONE DETECTED

NON-ASBESTOS (%)

Cellulose	10
Non-Fibrous Material	90

Signature: Maflene J. Kane

Maflene J. Kane

Method # EPA-600/M4-82-020



SEG LABORATORIES, INC.

DATE: December 18, 1990

ASBESTOS REPORT  
BULK ANALYSIS

NAME: SEG Engineers & Consultants, Inc.  
ADDRESS: 1120 May Street  
Lansing, MI 48906  
Attention: Peter F. Cole, P.E.

PO #/JOB #: 14002A (YMCA, 301 W. Lenawee)

SEG#: 22321

SAMPLE DESCRIPTION: Basement Fire Pump  
Room, 4-Inch Mud Elbow Water Line

CLIENT/FIELD ID#: 05  
DATE COLLECTED: December 4, 1990  
COLLECTED BY: J. Hartner

RESULT

Polarized Light Microscopy  
Dispersion Staining Technique

ASBESTOS (%)

Chrysotile 30

NON-ASBESTOS (%)

Mineral Wool 10  
Non-Fibrous Material 60

Signature: Marlene J. Kane

Marlene J. Kane

Method # EPA-600/M4-82-020

SEG LABORATORIES, INC.

DATE: December 18, 1990

ASBESTOS REPORT  
BULK ANALYSIS

NAME: SEG Engineers & Consultants, Inc.  
ADDRESS: 1120 May Street  
Lansing, MI 48906  
Attention: Peter F. Cole, P.E.

PO #/JOB #: 14002A (YMCA, 301 W. Lenawee)

SEG#: 22322

SAMPLE DESCRIPTION: Basement Fire Pump  
Room, 2-Inch Steam Line Elbow  
Plaster  
CLIENT/FIELD ID#: 06  
DATE COLLECTED: December 4, 1990  
COLLECTED BY: J. Hartner

RESULT

Polarized Light Microscopy  
Dispersion Staining Technique

ASBESTOS (%)

Chrysotile	30
------------	----

NON-ASBESTOS (%)

Mineral Wool	10
Non-Fibrous Material	60

Signature: Marlene J. Kane

Marlene J. Kane

Method # EPA-600/M4-82-020

SEG LABORATORIES, INC.

DATE: December 18, 1990

ASBESTOS REPORT  
BULK ANALYSIS

NAME: SEG Engineers & Consultants, Inc.  
ADDRESS: 1120 May Street  
Lansing, MI 48906  
Attention: Peter F. Cole, P.E.

PO #/JOB #: 14002A (YMCA, 301 W. Lenawee)

SEG#: 22323

SAMPLE DESCRIPTION: Basement Fire Pump  
Room, 2-Inch Steam Line Layered  
Paper

CLIENT/FIELD ID#: 07  
DATE COLLECTED: December 4, 1990  
COLLECTED BY: J. Hartner

RESULT

Polarized Light Microscopy  
Dispersion Staining Technique

ASBESTOS (%)

Chrysotile 30

NON-ASBESTOS (%)

Mineral Wool 10  
Non-Fibrous Material 60

Signature: Marlene J. Kane

Marlene J. Kane

Method # EPA-600/M4-82-020

SEG  
SEG LABORATORIES, INC.

DATE: December 18, 1990

## ASBESTOS REPORT BULK ANALYSIS

NAME: SEG Engineers & Consultants, Inc.  
ADDRESS: 1120 May Street  
Lansing, MI 48906  
Attention: Peter F. Cole, P.E.

PO #/JOB #: 14002A (YMCA, 301 W. Lenawee)

SEG#: 22324

SAMPLE DESCRIPTION: Second Floor Michigan  
Room, Plaster Ceiling

CLIENT/FIELD ID#: 08  
DATE COLLECTED: December 4, 1990  
COLLECTED BY: J. Hartner

### RESULT

Polarized Light Microscopy  
Dispersion Staining Technique

### ASBESTOS (%)

NONE DETECTED

### NON-ASBESTOS (%)

Cellulose	10
Mineral Wool	20
Non-Fibrous Material	70

Signature: Marlene J. Kane

Marlene J. Kane

Method # EPA-600/M4-82-020

SEG  
SEG LABORATORIES, INC.

DATE: December 18, 1990

ASBESTOS REPORT  
BULK ANALYSIS

NAME: SEG Engineers & Consultants, Inc.  
ADDRESS: 1120 May Street  
Lansing, MI 48906  
Attention: Peter F. Cole, P.E.

PO #/JOB #: 14002A (YMCA, 301 W. Lenawee)

SEG#: 22325

SAMPLE DESCRIPTION: Fifth Floor, Plaster  
Ceiling over Lathe

CLIENT/FIELD ID#: 09  
DATE COLLECTED: December 4, 1990  
COLLECTED BY: J. Hartner

RESULT

Polarized Light Microscopy  
Dispersion Staining Technique

ASBESTOS (%)

NONE DETECTED

NON-ASBESTOS (%)

Cellulose	20
Non-Fibrous Material	80

Signature: Marlene J. Kane

Marlene J. Kane

Method # EPA-600/M4-82-020

SEG  
SEG LABORATORIES, INC.

DATE: December 18, 1990

## ASBESTOS REPORT BULK ANALYSIS

NAME: SEG Engineers & Consultants, Inc.  
ADDRESS: 1120 May Street  
Lansing, MI 48906  
Attention: Peter F. Cole, P.E.

PO #/JOB #: 14002A (YMCA, 301 W. Lenawee)

SEG#: 22327

SAMPLE DESCRIPTION: Multipurpose Room,  
Basement, 10-Inch Main Steam Line  
Entrance  
CLIENT/FIELD ID#: 11  
DATE COLLECTED: December 4, 1990  
COLLECTED BY: J. Hartner

### RESULT

Polarized Light Microscopy  
Dispersion Staining Technique

#### ASBESTOS (%)

Chrysotile 60

#### NON-ASBESTOS (%)

Non-Fibrous Material 40

Signature: Marlene J. Kane

Marlene J. Kane

Method # EPA-600/M4-82-020



SEG  
SEG LABORATORIES, INC.

DATE: December 18, 1990

## ASBESTOS REPORT BULK ANALYSIS

NAME: SEG Engineers & Consultants, Inc.  
ADDRESS: 1120 May Street  
Lansing, MI 48906  
Attention: Peter F. Cole, P.E.

PO #/JOB #: 14002A (YMCA, 301 W. Lenawee)

SEG#: 22328

SAMPLE DESCRIPTION: Pool Mechanical Room,  
1-1/2 Inch Heat Return Plaster

CLIENT/FIELD ID#: 12  
DATE COLLECTED: December 4, 1990  
COLLECTED BY: J. Hartner

### RESULT

Polarized Light Microscopy  
Dispersion Staining Technique

#### ASBESTOS (%)

NONE DETECTED

#### NON-ASBESTOS (%)

Mineral Wool	20
Non-Fibrous Material	80

Signature: Marlene J. Kane

Marlene J. Kane

Method # EPA-600/M4-82-020

SEG  
SEG LABORATORIES, INC.

DATE: December 18, 1990

## ASBESTOS REPORT BULK ANALYSIS

NAME: SEG Engineers & Consultants, Inc.  
ADDRESS: 1120 May Street  
Lansing, MI 48906  
Attention: Peter F. Cole, P.E.

PO #/JOB #: 14002A (YMCA, 301 W. Lenawee)

SEG#: 22329

SAMPLE DESCRIPTION: Basement, Old Pantry,  
1-1/4 Inch Plaster Elbow Water

CLIENT/FIELD ID#: 13  
DATE COLLECTED: December 4, 1990  
COLLECTED BY: J. Hartner

### RESULT

Polarized Light Microscopy  
Dispersion Staining Technique

#### ASBESTOS (%)

Chrysotile 40

#### NON-ASBESTOS (%)

Non-Fibrous Material 60

Signature: Marlene J. Kane  
Marlene J. Kane

Method # EPA-600/M4-82-020

SEG  
SEG LABORATORIES, INC.

DATE: December 18, 1990

## ASBESTOS REPORT BULK ANALYSIS

NAME: SEG Engineers & Consultants, Inc.  
ADDRESS: 1120 May Street  
Lansing, MI 48906  
Attention: Peter F. Cole, P.E.

PO #/JOB #: 14002A (YMCA, 301 W. Lenawee)

SEG#: 22331

SAMPLE DESCRIPTION: New Court Area, 1-1/4  
Inch Elbow Plaster

CLIENT/FIELD ID#: 15  
DATE COLLECTED: December 4, 1990  
COLLECTED BY: J. Hartner

### RESULT

Polarized Light Microscopy  
Dispersion Staining Technique

### ASBESTOS (%)

NONE DETECTED

### NON-ASBESTOS (%)

Mineral Wool	40
Non-Fibrous Material	60

Signature: Marlene J. Kane

Marlene J. Kane

Method # EPA-600/M4-82-020

SEG  
SEG LABORATORIES, INC.

DATE: December 18, 1990

## ASBESTOS REPORT BULK ANALYSIS

NAME: SEG Engineers & Consultants, Inc.  
ADDRESS: 1120 May Street  
Lansing, MI 48906  
Attention: Peter F. Cole, P.E.

PO #/JOB #: 14002A (YMCA, 301 W. Lenawee)

SEG#: 22332

SAMPLE DESCRIPTION: Basement, Multipurpose  
Room, 1-1/2 Inch Elbow Plaster  
Steamline  
CLIENT/FIELD ID#: 16  
DATE COLLECTED: December 4, 1990  
COLLECTED BY: J. Hartner

### RESULT

Polarized Light Microscopy  
Dispersion Staining Technique

### ASBESTOS (%)

NONE DETECTED

### NON-ASBESTOS (%)

Mineral Wool	40
Non-Fibrous Material	60

Signature: Marlene J. Kane

Marlene J. Kane

Method # EPA-600/M4-82-020

SEG LABORATORIES, INC.

DATE: December 20, 1990

ASBESTOS REPORT  
BULK ANALYSIS

NAME: SEG Engineers & Consultants, Inc.  
ADDRESS: 1120 May Street  
Lansing, MI 48906  
Attention: Peter F. Cole, P.E.

PO #/JOB #: 14002A (YMCA, 301 W. Lenawee)

SEG#: 22333

SAMPLE DESCRIPTION: Youth Lobby, First  
Floor Wall Plaster

CLIENT/FIELD ID#: 17  
DATE COLLECTED: December 4, 1990  
COLLECTED BY: J. Hartner

RESULT

Polarized Light Microscopy  
Dispersion Staining Technique

ASBESTOS (%)

Chrysotile 2

NON-ASBESTOS (%)

Cellulose 28  
Non-Fibrous Material 70

Signature: Marlene J. Kane

Marlene J. Kane

Method # EPA-600/M4-82-020

SEG LABORATORIES, INC.

DATE: December 18, 1990

## ASBESTOS REPORT BULK ANALYSIS

NAME: SEG Engineers & Consultants, Inc.  
ADDRESS: 1120 May Street  
Lansing, MI 48906  
Attention: Peter F. Cole, P.E.

PO #/JOB #: 14002A (YMCA, 301 W. Lenawee)

SEG#: 22334

SAMPLE DESCRIPTION: Old Pantry, 1-1/4  
Inch Layered Paper Potable Water

CLIENT/FIELD ID#: 18  
DATE COLLECTED: December 4, 1990  
COLLECTED BY: J. Hartner

### RESULT

Polarized Light Microscopy  
Dispersion Staining Technique

### ASBESTOS (%)

NONE DETECTED

### NON-ASBESTOS (%)

Cellulose

100

Signature: Marlene J. Kane

Marlene J. Kane

Method # EPA-600/M4-82-020



SEG  
SEG LABORATORIES, INC.

DATE: December 20, 1990

## ASBESTOS REPORT BULK ANALYSIS

NAME: SEG Engineers & Consultants, Inc.  
ADDRESS: 1120 May Street  
Lansing, MI 48906  
Attention: Peter F. Cole, P.E.

PO #/JOB #: 14002A (YMCA, 301 W. Lenawee)

SEG#: 22335

SAMPLE DESCRIPTION: Basement Floor Tile  
9-Inch Brown

CLIENT/FIELD ID#: 19  
DATE COLLECTED: December 4, 1990  
COLLECTED BY: J. Hartner

### RESULT

Polarized Light Microscopy  
Dispersion Staining Technique

#### ASBESTOS (%)

Chrysotile 2

#### NON-ASBESTOS (%)

Cellulose 3  
Non-Fibrous Material 95

Signature: Marlene J. Kane  
Marlene J. Kane

Method # EPA-600/M4-82-020

SEG LABORATORIES, INC.

DATE: December 18, 1990

ASBESTOS REPORT  
BULK ANALYSIS

NAME: SEG Engineers & Consultants, Inc.  
ADDRESS: 1120 May Street  
Lansing, MI 48906  
Attention: Peter F. Cole, P.E.

PO #/JOB #: 14002A (YMCA, 301 W. Lenawee)

SEG#: 22336

SAMPLE DESCRIPTION: Sub-basement, Heat  
Exchange

CLIENT/FIELD ID#: 20  
DATE COLLECTED: December 4, 1990  
COLLECTED BY: J. Hartner

RESULT

Polarized Light Microscopy  
Dispersion Staining Technique

ASBESTOS (%)

Chrysotile 30

NON-ASBESTOS (%)

Mineral Wool 10  
Non-Fibrous Material 60

Signature: Marlene J. Kane

Marlene J. Kane

Method # EPA-600/M4-82-020

**APPENDIX C**

**ASBESTOS BULK SAMPLE RESULTS  
FROM JANUARY 17, 1991 SAMPLING**

SEG  
SEG LABORATORIES, INC.

DATE: January 24, 1991

**ASBESTOS REPORT  
BULK ANALYSIS**

NAME: SEG Engineers & Consultants, Inc.  
ADDRESS: 1120 May Street  
Lansing, MI 48906  
Attention: Peter F. Cole, P.E.

PO #/JOB #: 14040A (YMCA - 301 W. Lenawee)

SEG#: 23317

SAMPLE DESCRIPTION: Pool tunnel 2"  
layered paper

CLIENT/FIELD ID#: 01  
DATE COLLECTED: January 17, 1991  
COLLECTED BY: J. Hartner

RESULT

Polarized Light Microscopy  
Dispersion Staining Technique

ASBESTOS (%)

ND

NON-ASBESTOS (%)

Cellulose

100%

Signature: Marlene J. Kane

Marlene J. Kane

Method # EPA-600/M4-82-020

**SEG**  
SEG LABORATORIES, INC.

DATE: January 24, 1991

**ASBESTOS REPORT  
BULK ANALYSIS**

NAME: SEG Engineers & Consultants, Inc.  
ADDRESS: 1120 May Street  
Lansing, MI 48906  
Attention: Peter F. Cole, P.E.

PO #/JOB #: 14040A (YMCA - 301 W. Lenawee)

SEG#: 23318

SAMPLE DESCRIPTION: Pool tunne 4"  
layered paper

CLIENT/FIELD ID#: 02  
DATE COLLECTED: January 17, 1991  
COLLECTED BY: J. Hartner

RESULT

Polarized Light Microscopy  
Dispersion Staining Technique

ASBESTOS (%)

ND

NON-ASBESTOS (%)

Cellulose

100%

Signature: Marlene J. Kane

Marlene J. Kane

Method # EPA-600/M4-82-020

**SEG**  
SEG LABORATORIES, INC.

DATE: January 24, 1991

**ASBESTOS REPORT  
BULK ANALYSIS**

NAME: SEG Engineers & Consultants, Inc.  
ADDRESS: 1120 May Street  
Lansing, MI 48906  
Attention: Peter F. Cole, P.E.

PO #/JOB #: 14040A (YMCA - 301 W. Lenawee)

SEG#: 23319

SAMPLE DESCRIPTION: Pool Mech. Room  
6" elbow plaster

CLIENT/FIELD ID#: 03  
DATE COLLECTED: January 17, 1991  
COLLECTED BY: J. Hartner

**RESULT**

Polarized Light Microscopy  
Dispersion Staining Technique

**ASBESTOS (%)**

ND

**NON-ASBESTOS (%)**

Cellulose	5%
Mineral Wool	15%
Nonfibrous material	80%

Signature: Marlene J. Kane

Marlene J. Kane

Method # EPA-600/M4-82-020



SEG  
SEG LABORATORIES, INC.

DATE: January 24, 1991

## ASBESTOS REPORT BULK ANALYSIS

NAME: SEG Engineers & Consultants, Inc.  
ADDRESS: 1120 May Street  
Lansing, MI 48906  
Attention: Peter F. Cole, P.E.

PO #/JOB #: 14040A (YMCA - 301 W. Lenawee)

SEG#: 23320

SAMPLE DESCRIPTION: Sump room 1-1/4"  
layered paper

CLIENT/FIELD ID#: 04  
DATE COLLECTED: January 17, 1991  
COLLECTED BY: J. Hartner

### RESULT

Polarized Light Microscopy  
Dispersion Staining Technique

#### ASBESTOS (%)

Chrysotile 10%

#### NON-ASBESTOS (%)

Cellulose 90%

Signature: Marlene J. Kane  
Marlene J. Kane

Method # EPA-600/M4-82-020

SEG  
SEG LABORATORIES, INC.

DATE: January 24, 1991

**ASBESTOS REPORT  
BULK ANALYSIS**

NAME: SEG Engineers & Consultants, Inc.  
ADDRESS: 1120 May Street  
Lansing, MI 48906  
Attention: Peter F. Cole, P.E.

PO #/JOB #: 14040A (YMCA - 301 W. Lenawee)

SEG#: 23321

SAMPLE DESCRIPTION: Sump room 1-1/4"  
elbow plaster

CLIENT/FIELD ID#: 05  
DATE COLLECTED: January 17, 1991  
COLLECTED BY: J. Hartner

RESULT

Polarized Light Microscopy  
Dispersion Staining Technique

ASBESTOS (%)

Chrysotile 60%

NON-ASBESTOS (%)

Cellulose 10%  
Nonfibrous material 30%

Signature: Marlene J. Kane  
Marlene J. Kane

Method # EPA-600/M4-82-020

SEG  
SEG LABORATORIES, INC.

DATE: January 24, 1991

**ASBESTOS REPORT  
BULK ANALYSIS**

NAME: SEG Engineers & Consultants, Inc.  
ADDRESS: 1120 May Street  
Lansing, MI 48906  
Attention: Peter F. Cole, P.E.

PO #/JOB #: 14040A (YMCA - 301 W. Lenawee)

SEG#: 23322

SAMPLE DESCRIPTION: Old pantry 2"  
layered paper

CLIENT/FIELD ID#: 06  
DATE COLLECTED: January 17, 1991  
COLLECTED BY: J. Hartner

RESULT

Polarized Light Microscopy  
Dispersion Staining Technique

ASBESTOS (%)

ND

NON-ASBESTOS (%)

Cellulose

100%

Signature: Marlene J. Kane  
Marlene J. Kane

Method # EPA-600/M4-82-020

**SEG**  
SEG LABORATORIES, INC.

DATE: January 29, 1991

**ASBESTOS REPORT  
BULK ANALYSIS**

NAME: SEG Engineers & Consultants, Inc.  
ADDRESS: 1120 May Street  
Lansing, MI 48906  
Attention: Peter F. Cole, P.E.

PO #/JOB #: 14002A (YMCA, 301 W. Lenawee)

SEG#: 23323

SAMPLE DESCRIPTION: Youth Lobby Wall  
Plaster East Wall

CLIENT/FIELD ID#: 07  
DATE COLLECTED: January 17, 1991  
COLLECTED BY: J. Hartner

**RESULT**

Polarized Light Microscopy  
Dispersion Staining Technique

**ASBESTOS (%)**

NONE DETECTED

**NON-ASBESTOS (%)**

Cellulose  
Non-Fibrous Material

5  
95

Signature: Marlene J. Kane

Marlene J. Kane

Method # EPA-600/M4-82-020

SEG  
SEG LABORATORIES, INC.

DATE: January 29, 1991

## ASBESTOS REPORT BULK ANALYSIS

NAME: SEG Engineers & Consultants, Inc.  
ADDRESS: 1120 May Street  
Lansing, MI 48906  
Attention: Peter F. Cole, P.E.

PO #/JOB #: 14002A (YMCA, 301 W. Lenawee)

SEG#: 23323

SAMPLE DESCRIPTION: Youth Lobby Wall  
Plaster East Wall

CLIENT/FIELD ID#: 07  
DATE COLLECTED: January 17, 1991  
COLLECTED BY: J. Hartner

### RESULT

Polarized Light Microscopy  
Dispersion Staining Technique

### ASBESTOS (%)

NONE DETECTED

### NON-ASBESTOS (%)

Cellulose  
Non-Fibrous Material

5  
95

Signature: Marlene J. Kane

Marlene J. Kane

Method # EPA-600/M4-82-020

**SEG**  
SEG LABORATORIES, INC.

DATE: January 24, 1991

**ASBESTOS REPORT  
BULK ANALYSIS**

NAME: SEG Engineers & Consultants, Inc.  
ADDRESS: 1120 May Street  
Lansing, MI 48906  
Attention: Peter F. Cole, P.E.

PO #/JOB #: 14040A (YMCA - 301 W. Lenawee)

SEG#: 23324

SAMPLE DESCRIPTION: Youth lobby wall  
plaster west wall

CLIENT/FIELD ID#: 08  
DATE COLLECTED: January 17, 1991  
COLLECTED BY: J. Hartner

RESULT

Polarized Light Microscopy  
Dispersion Staining Technique

ASBESTOS (%)

ND

NON-ASBESTOS (%)

Cellulose	5%
Nonfibrous material	95%

Signature: Marlene J. Kane  
Marlene J. Kane

Method # EPA-600/M4-82-020



TRANSACTION SCREEN

*Location:*

*Vacant City Lot  
319 West Lenawee Street  
Lansing, Michigan*

*Prepared for:*

*Mr. Tony Fragale  
YMCA Lansing  
301 West Lenawee  
Lansing, Michigan*

*Prepared by:*

*PM Environmental, Inc.  
1035 East Saginaw Highway  
Lansing, Michigan 48906*

**TRANSACTION SCREEN OF:  
VACANT CITY LOT  
319 WEST LENAWE  
LANSING, MICHIGAN  
MARCH 25, 1999**

## TABLE OF CONTENTS

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## APPENDICES

Appendix A:	Property Assessing Information
Appendix B:	Transaction Screen Questionnaires
Appendix C:	Database Information
Appendix D:	Sanborn Fire Insurance Maps

below) may commence inquiry to identify recognized environmental conditions in connection with a property by performing either the Transaction Screen Process or the Phase I Environmental Site Assessment.

ASTM Practice E-1528-96 defines "user" as a person on whose behalf the Transaction Screen is being conducted or the "party seeking to use the Transaction Screen Process of this practice or the Phase I Environmental Site Assessment of the Practice E-1527-97 to perform an environmental assessment of the property. A user may include, without limitation, a purchaser of property, a potential tenant, an owner of property, a lender, or a property manager, including an agent, independent contractor or employee of the user or wholly or partially by an environmental professional, although it does not require the judgement of an environmental professional.

The Transaction Screen may be conducted by the user. The "user" for purposes of this project is Mr. Tony Fragale, representing the YMCA Lansing, Lansing, Michigan. PME certifies the contents of this report for usage and reliance upon by the aforementioned party. Upon completion of the Transaction Screen Process the user should conclude either: (1) no further inquiry into recognized environmental conditions at the property, or (2) further inquiry is needed to assess recognized environmental conditions for purposes of appropriate inquiry. If either the guide to Transaction Screen questions or other information obtained during the Transaction Screen Process does not permit a user to conclude no further inquiry is appropriate with respect to such question, then the user must determine, in the exercise of reasonable business judgement, based upon the totality of unresolved affirmative answers or answers of unknown received during the Transaction Screen Process, whether further inquiry may be limited to specific issues identified of concern or should proceed to a full Phase I ESA. Performance of either this practice or Practice E-1527-97 (Phase I ESA) is intended to reduce but not eliminate uncertainty regarding the existence of recognized environmental conditions in connection with a property, and both practices recognize the reasonable limits of time and cost.

## **2.0 SCOPE OF WORK**

The Transaction Screen Process consists of a standard questionnaire involving addressing questions to owners and occupants of the property, observing site conditions at the property with the direction provided by the Transaction Screen Questionnaire, and to the extent reasonably ascertainable, conducting limited research regarding government records and certain standard historical sources.

Copies of the Transaction Screen Questionnaire that have been completed by or asked of the following parties as required by the process and have been included as Appendix B to this correspondence:

#### **4.0 INVESTIGATION RESULTS**

In completing the Transaction Screen Questionnaire, it is the guidance of the process that if any of the questions set forth in the Transaction Screen Questionnaire are answered in the affirmative, the user must document the reason for the affirmative answer. If any of the questions are not answered or the answer is unknown, the user should document such non response or answer(s) of unknown. Questions not answered, answers in the unknown and affirmative answers should be evaluated in light of the other information obtained in the Transaction Screen Process, including in particular, the site visit and the government records/historical sources inquiry. In addition, upon receiving an answer of unknown or no response, the user should first refer to the guide. The guide may provide sufficient explanation to allow a user to conclude that no further inquiry is appropriate with respect to that particular question. If the user decides no further inquiry is necessary after having received these responses, the reason must be documented.

A presumption exists that further inquiry is necessary if an affirmative answer is given to a question because the answer was unknown or no response was given. In rebutting this presumption the user should evaluate information obtained from each component of the Transaction Screen Process to consider whether sufficient information has been obtained to conclude that no further inquiry is necessary.

##### **4.1 Questionnaires**

Completion of the Transaction Screen Questionnaire by Ms. Peggy Corp and PME did not indicate any answers in the affirmative or unknown with the exception of reference to fill material brought onto the subject site after demolition of the subject site building. Ms. Corp indicated that fill material was brought onto the subject site property and indicated to PME through a March 24, 1999 phone correspondence that this fill material originated from a gravel pit, not known to contain contamination. Additionally, Ms. Corp indicated that prior to the fill material deposition onto the subject site property, that the entire former foundation of the building was excavated from the subject site and that no demolition debris from the former structure remains at the subject site property. Based on the March 24, 1999 phone correspondence, PME does not recommend any additional investigation into the fill material brought onto the subject site property and does not view this as a reasonable potential environmental concern to the subject site.

##### **4.2 Historical Sources Inquiry**

A requirement of the Transaction Screen Standard is associated with Sanborn Map coverage review, or if not available, inquiry with the local fire department. According to the Transaction Screen Process Guide, "the focus of this research is to determine whether any past use of the

of the area noted below:"

List maintained by state environmental agency of hazardous waste sites identified for investigation or remediation that is the state equivalent to NPL-  
No.

List maintained by state environmental agency of sites identified for investigation or remediation that is equivalent to CERCLIS-  
No.

Leaking Underground Storage Tank (LUST) list-  
One

*Michigan Conference Seventh Day located at 320 W. St. Joseph was identified as located approximately 0.08 miles south of the subject site. However, based on area groundwater flow direction to the east and the site's status as "closed," this site does not appear to represent an environmental concern in connection with the subject site.*

Solid Waste/Landfill Facilities-

No

## 5.0 CONCLUSIONS AND RECOMMENDATIONS

PME has performed a Transaction Screen in conformance with the scope and limitations of ASTM Practice E-1528-96 of the vacant city lot located at 319 West Lenawee, Lansing, Ingham County, Michigan. The regulatory records review and historical sources inquiry did not provide responses indicating the need for additional inquiry. Based on the totality of responses to the Transaction Screen Questionnaire, PME does not recommend additional inquiry at this time.

If you have any questions or concerns with regard to this correspondence, please feel free to contact me at (517)485-3333.

Sincerely,  
PM ENVIRONMENTAL, INC.

Brad N. Davidson  
Project Engineer

Michael T. Kulka, P.E.  
Principal

3301-16-379-091 1  
MICH ASSN OF MENTAL HEALTH BOARDS

319 W LENAWEE ST  
LANSING MI 48933

319 W LENAWE ST  
E 4 R LOTS 11 & 12  
BLOCK 147 ORIG PLAT

88/8 886  
200 1251

—

ALL INFORMATION CONTAINED  
HEREIN IS UNCLASSIFIED

LAND ESTIMATE									
STREET IMPROVEMENTS					TOPO				
SEWER	ELEC	DIRT	SIDEWALK	LEVEL					
WATER	BLVD LIGHT	PAVED		LOW					
GAS	CURB	GRAVEL		HIGH					
FRONTAGE AND DEPTH	DEPTH	ADJ. FRONTAGE	CORNER OR MISC. FACTOR	UNIT VALUE					
65' x 120'	92'	61.09		75	4604				
271.2 sq. ft.					49860				
					1.38				
					0725				
					ACRES				
					GROSS VALUE				

DEEDS			
GRANTOR	PG.	DATE	R-S
GRANTEE			
ADDRESS			
LIB			
GRANTOR			
GRANTEE			
ADDRESS			
LIB			
MISC.			

A hand-drawn diagram on a grid showing a rectangular area. The vertical dimension is labeled '66' and the horizontal dimension is labeled '1.32'. The diagram is drawn with a solid line.

SUMMARY OF BUILDING VALUES		APPRAISED VALUE
HOUSE		\$83,195.
GARAGE		

YEAR	LAND	BUILDING	TOTAL	ASSESSED
1994				EX-15
1995				8
1996				0
1997				0
1998				0
1979	30-92	89,091	59,583	29,800
1982	34848	54,749	89,597	44,800
1987	34,528	82,195	117,043	58,500
1989	48090	82,195	130,285	EX-15
1990	60113	82,195	142,308	EX-15
1993				EX

PROPERTY CLASSIFICATION

## ZONING



## ENHANCING INFLUENCE

# APPRAISED LAND VALUE

DATE	PERMIT NUMBLR	KIND OF BUILDING	VALUE
1-23-63	1195	FRONT PORCH	32.00
1-23-63	1195	FRONT PORCH	32.00
7-22-62	7678	SIDEWALK - VINYL TILES & WINDOWS	18672
10-20-71	1349	BARBECUE FIRE RAMP	7400
11-16-98	18089	DEMO ALL STRUCTURES	
FROM	BOOK		





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TRANSACTION SCREEN QUESTIONNAIRE  
ASTM DESIGNATION E 1528-96Owner Mich. Assoc of CMH Board Occupant SameSite Address: 319 W. Lenawee Street, Lansing, MI

Description of Site \_\_\_\_\_

1a. Is the property used for industrial use? (If applicable, please list below.)

☐ Yes ☒ No ☐ Unknown

1b. Is the adjoining property used for industrial use? (If applicable, please list below.)

☐ Yes ☒ No ☐ Unknown

## Land Use

Property: \_\_\_\_\_

Adjoining Properties North: Lenawee St.Adjoining Properties South: Ymca Parking LotAdjoining Properties East: YmcaAdjoining Properties West: Ymca Parking Lot

2a. Did you observe evidence or do you have any prior knowledge that the property has been used for an industrial use in the past. (If applicable, please list below.)

☐ Yes ☒ No ☐ Unknown

2b. Did you observe evidence or do you have any prior knowledge that the adjoining property has been used for an industrial use in the past. (If applicable, please list below.)

☐ Yes ☒ No ☐ Unknown

	Owner	Use	Dates
Previous Use of Property:	_____	_____	_____
Previous Use of Properties to North:	_____	_____	_____
Previous Use of Properties to South:	_____	_____	_____
Previous Use of Properties to East:	_____	_____	_____
Previous Use of Properties to West:	_____	_____	_____

3a. Is the property used as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility? *(If applicable, identify which below.)*

\_\_\_\_\_ Yes ☒ No

3b. Is the adjoining property used as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility? *(If applicable, identify which below.)*

\_\_\_\_\_ Yes ☒ No

#### Land Use

Property: \_\_\_\_\_

Adjoining Properties North: \_\_\_\_\_

Adjoining Properties South: \_\_\_\_\_

Adjoining Properties East: \_\_\_\_\_

Adjoining Properties West: \_\_\_\_\_

4a. Did you observe evidence or do you have any prior knowledge that the property has been used as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing

- 4a. Did you observe evidence or do you have any prior knowledge that the property has been used as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility? (If applicable, identify which below.)

\_\_\_\_ Yes ☒ No \_\_\_\_ Unknown

- 4b. Did you observe evidence or do you have any prior knowledge that the adjoining properties has been used as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility? (If applicable, identify which below.)

\_\_\_\_ Yes ☒ No \_\_\_\_ Unknown

	Owner	Use	Dates
Previous Use of Property:	_____	_____	_____
Previous Use of Properties to North:	_____	_____	_____
Previous Use of Properties to South:	_____	_____	_____
Previous Use of Properties to East:	_____	_____	_____
Previous Use of Properties to West:	_____	_____	_____

- 5a. Are there currently any damaged or discarded automotive or industrial batteries, pesticides, paints, or other chemicals in individual containers of greater than 5 gal (19L) in volume or 50 gal (190L) in the aggregate, stored on or used at the property or at the facility? Sheltered areas, cartons, sacks, storage bins, large canisters, sheds, or cellars of existing improvements are examples of containers and areas where chemicals or hazardous substances may be stored. If the answer to this question is "yes", list the items and the location(s) where they are stored. If unfamiliar with the contents of any container located on the site, the question must be answered "yes" until the materials are identified. (Consumer products in undamaged containers used for routine office maintenance or business, such as copy toner, should not create a need for further inquiry unless the quantity of such products is in excess of what would be customary for such use.)

\_\_\_\_ Yes ☒ No \_\_\_\_ Unknown

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- 5a. Did you observe evidence or do you have any prior knowledge that there have been any damaged or discarded automotive or industrial batteries, or pesticides, paints, or other chemicals in individual containers of greater than 5 gal (19L) in volume or 50 gal (190L) in the aggregate, stored on or used at the property or at the facility? Sheltered areas, cartons, sacks, storage bins, large canisters, sheds, or cellars of existing improvements are examples of containers and areas where chemicals or hazardous substances may be stored. If the answer to this question is "yes", list the items and the location(s) where they are stored. If unfamiliar with the contents of any container located on the site, the question must be answered "yes" until the materials are identified. *(Consumer products in undamaged containers used for routine office maintenance or business, such as copy toner, should not create a need for further inquiry unless the quantity of such products is in excess of what would be customary for such use.)*

\_\_\_\_ Yes ☒ No

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- 6a. Are there currently, any industrial drums (typically 55 gal (208 L) or sacks of chemicals located on the property or at the facility?

\_\_\_\_ Yes ☒ No

- 6b. Did you observe evidence or do you have any prior knowledge that there have been previously any industrial drums (typically 55 gal (208 L) or sacks of chemicals (typically 201b (9Kg)) located on the property or at the facility?

\_\_\_\_ Yes ☒ No

- 7a. Did you observe evidence or do you have any prior knowledge that fill dirt has been brought onto the property that originated from a contaminated site? If any structures have been demolished in place and fill dirt compacted over them, it should be noted/investigated whether the structures were demolished in place, such debris may contain asbestos or hazardous substances. *(Please indicate origin of fill dirt if known.)*

\_\_\_\_ Yes ☒ No

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- 7b. Did you observe evidence or do you have any prior knowledge that fill dirt has been brought onto the property that is of an unknown origin? If any structures have been demolished in place and fill dirt compacted over them, it should be noted/investigated whether the structures were demolished



in place, such debris may contain asbestos or hazardous substances *(Please indicate origin of fill dirt if known.)*

☒ Yes ☐ No ☐ Unknown

8a. Are there currently any pits, ponds, or lagoons located on the property in connection with waste treatment or waste disposal?

☐ Yes ☒ No ☐ Unknown

8b. Did you observe evidence or do you have any prior knowledge that there have been any previously, any pits, ponds, or lagoons located on the property in connection with waste treatment or waste disposal?

☐ Yes ☒ No ☐ Unknown

9a. Is there currently any stained soil on the property? *Soils that are stained show a marked discoloration as compared to other soils in the immediate vicinity.*

☐ Yes ☒ No ☐ Unknown

9b. Did you observe evidence or do you have any prior knowledge that there have been any previously, any stained soil on the property? *Soils that are stained show a marked discoloration as compared to other soils in the immediate vicinity.*

☐ Yes ☒ No ☐ Unknown

10a. Are there currently any registered or unregistered storage tanks (above or underground) located on the property?

☐ Yes ☒ No ☐ Unknown

10b. Did you observe evidence or do you have any prior knowledge that there have been any previously, any registered or unregistered storage tanks (above or underground) located on the property? *Tanks can be used to store heating oil, chemical, and petroleum products.*

☐ Yes ☒ No ☐ Unknown

11a. Are there currently any vent pipes, fill pipes, or access ways indicating a fill pipe protruding from the ground on the property or adjacent to any structure located on the property? *(Additionally, in answering*

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this question the owner and occupant should consider any asphalt or concrete patching that would indicate the possibility of previous underground storage tank removal.)

\_\_\_\_\_ Yes ☒ No

- 11b. Did you observe evidence or do you have any prior knowledge that there have been any previously, any vent pipes, fill pipes, or access ways indicating a fill pipe protruding from the ground on the property or adjacent to any structure located on the property? (Additionally, in answering this question the owner and occupant should consider any asphalt or concrete patching that would indicate the possibility of previous underground storage tank removal.)

\_\_\_\_\_ Yes ☒ No

- 12a. Are there currently any flooring, drains, or walls located within the facility that are stained by substances other than water or are emitting foul odors? (Floor drains located within a building adjacent to hazardous substance storage areas or connected to an on-site disposal system (e.g., septic system) present a potential source of subsurface discharge of contaminants.)

\_\_\_\_\_ Yes ☒ No

- 12b. Did you observe evidence or do you have any prior knowledge that there have been any previously, any flooring, drains, or walls located within the facility that are stained by substances other than water or are emitting foul odors? (Floor drains located within a building adjacent to hazardous substance storage areas or connected to an on-site disposal system (e.g., septic system) present a potential source of subsurface discharge of contaminants.)

\_\_\_\_\_ Yes ☒ No

- 13a. If the property is served by a private well or non-public water system, is there evidence or do you have prior knowledge that contaminants have been identified in the well or system that exceed guidelines applicable to the water system? (If the system is private, it probably has been tested for contamination or evidence that it is free from contamination and the results from any such tests should be produced by the owner or occupant of the well. If available, please attach water test results.)

\_\_\_\_\_ Yes ☒ No

- 13a. If the property is served by a private well or non-public water system, is there evidence or do you have prior knowledge that the well has been designated as contaminated by any government environmental/health agency? (If the system is private, it probably has been tested for contamination or evidence that it is free from contamination and the results from any such tests should be produced by the owner or occupant of the well. If available, please attach water test results.)

\_\_\_\_\_ Yes ☒ No

14. Does the owner or occupant of the property have any knowledge of environmental liens or governmental notification relating to past or recurrent violations of environmental laws with respect to the property or any other facility located on the property?
- \_\_\_\_ Yes ☒ No \_\_\_\_ Unknown
- 15a. Has the owner or occupant of the property been informed of the past existence of hazardous substances or petroleum products with respect to the property or any facility located on the property? *(Consider whether any environmental professionals familiar with hazardous substances or petroleum products have observed or determined that contamination existed on the property.)*
- \_\_\_\_ Yes ☒ No \_\_\_\_ Unknown
- 15b. Has the owner or occupant of the property been informed of the current existence of hazardous substances or petroleum products with respect to the property or any facility located on the property? *(Consider whether any environmental professionals familiar with hazardous substances or petroleum products have observed or determined that contamination existed on the property.)*
- \_\_\_\_ Yes ☒ No \_\_\_\_ Unknown
- 15c. Has the owner or occupant of the property been informed of the past existence of environmental violations with respect to the property or any facility located on the property? *(Consider whether any environmental professionals familiar with hazardous substances or petroleum products have observed or determined that contamination existed on the property.)*
- \_\_\_\_ Yes ☒ No \_\_\_\_ Unknown
- 15d. Has the owner or occupant of the property been informed of the current existence of environmental violations with respect to the property or any facility located on the property? *(Consider whether any environmental professionals familiar with hazardous substances or petroleum products have observed or determined that contamination existed on the property.)*
- \_\_\_\_ Yes ☒ No \_\_\_\_ Unknown
16. Does the owner or occupant of the property have any knowledge of any environmental site assessment of the property or facility that indicated the presence of hazardous substances or petroleum products on, or contamination of, the property or recommended further assessment of the property? *Please attach copies of prior environmental site assessments or environmental investigations.*
- \_\_\_\_ Yes ☒ No \_\_\_\_ Unknown
17. Does the owner or occupant of the property know of any past, threatened, or pending lawsuits or administrative proceedings concerning a release or threatened release of any hazardous substance or petroleum products involving the property by any owner or occupant of the property? This question is

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The questionnaire was completed by:

Name BRAD DAVIDSON  
Title PROJECT MANAGER  
Firm PM ENVIRONMENTAL  
Address 1035 E. SAGINAW  
LANSING MI 48906  
Phone # 517-485-3337  
Date 2-25-79

If the preparer is different than the user, complete the following:

Name of user MR. TOM FRAGALE - YMCA LANSING  
User's address 301 WEST LEXAVER  
LANSING, MI 48933  
User's phone # 517-484-6464 x(15)  
Preparer's relationship to site: ENVIRONMENTAL PROFESSIONAL

Preparer's relationship to user (for example, principal, employee, agent, consultant):  
CONSULTANT

Copies of the completed questionnaire have been filed at:  
PM ENVIRONMENTAL INC  
1035 E. SAGINAW  
LANSING MI 48906

Copies of the completed questionnaire have been mailed or delivered to:  
YMCA - LANSING c/o TOM FRAGALE (AS ABOVE)  
\* Loomis, Ewert, Parsley, Davis & Goring, P.C. c/o Mr. Karl Goring  
222 S. Capitol, Suite 1000 Lansing, MI 48933

Preparer represents that to the best of the preparer's knowledge the above statements and facts are true and correct to the best of the preparer's actual knowledge no material facts have been suppressed or misstated.

BRAD DAVIDSON  
Signature

3-25-79  
Date

Signature

Date

Signature

Date

- \*\*21. The preparer of the transaction screen questionnaire must complete and sign the following statement.  
(See attached for definitions of "preparer" and "user".)

The questionnaire was completed by:

Name \_\_\_\_\_  
Title \_\_\_\_\_  
Firm \_\_\_\_\_  
Address \_\_\_\_\_  
Phone # \_\_\_\_\_  
Date \_\_\_\_\_

If the preparer is different than the user, complete the following:

Name of user \_\_\_\_\_  
User's address \_\_\_\_\_  
User's phone # \_\_\_\_\_  
Preparer's relationship to site: \_\_\_\_\_

Preparer's relationship to user (for example, principal, employee, agent, consultant): \_\_\_\_\_

Copies of the completed questionnaire have been filed at: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Copies of the completed questionnaire have been mailed or delivered to: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Preparer represents that to the best of the preparer's knowledge the above statements and facts are true and correct to the best of the preparer's actual knowledge no material facts have been suppressed or misstated.

Peggy A. Corp  
Signature

3-22-99  
Date

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

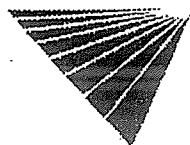
PM Environmental, Inc.

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# REAL ESTATE TRANSACTION SCREEN REPORT V

PROPERTY INFORMATION	CLIENT INFORMATION
Loan #/Ref #: PME Vacant Lot/Formal Dwelling 319 W. Lenawee Street Lansing, MI 48933 Latitude/Longitude: ( 42.728483, 84.556228 )	

ENVIRONMENTAL RISK SUMMARY	Property/ Adjacent Area (w/in 1/8 mi)	Sur- rounding Area (1/8-1 mi)
<b>A) Properties in the area with Known Contamination:</b>		
Designated for Superfund clean-up by the US EPA (NPL):	0	0
RCRA Corrective Actions (CORRACTS) and associated TSD:	0	1
Prioritized by the state for clean-up (SPL):	0	0
<b>B) Properties in the area with Potential Contamination:</b>		
That treat, store, /or dispose of hazardous waste (RCRA TSD):	0	0
Under review by the US EPA (CERCLIS) or formerly under review by US EPA (NFRAP):	0	2
Under review by the state (SCL):	0	4
With leaking underground storage tanks (LUST):	1	12
Permitted as solid waste landfills, incinerators, or transfer stations (SWLF):	0	0
<b>C) Properties in the area with Environmentally Sensitive Business Activities:</b>		
With previous hazardous materials spills (ERNS):	0	-
That generate large quantities of hazardous waste (RCRIS):	0	-
That generate small quantities of hazardous waste (RCRIS):	1	-
With registered aboveground storage tanks (AST):	0	0
With registered underground storage tanks (UST):	1	6
This report meets the ASTM standard E-1528 for standard federal and state government database research in a Transaction Screen environmental site assessment. A (-) indicates a distance not searched because it exceeds these ASTM search parameters.		
<b>LIMITATION OF LIABILITY</b> Customer proceeds at its own risk in choosing to rely on VISTA services, in whole or in part, prior to proceeding with any transaction. VISTA cannot be an insurer of the accuracy of the information, errors occurring in conversion of data, or for customer's use of data. VISTA and its affiliated companies, officers, agents, employees and independent contractors cannot be held liable for accuracy, storage, delivery, loss or expense suffered by customer resulting directly or indirectly from any information provided by VISTA.		



For more information call VISTA Information Solutions, Inc. at 1 - 800 - 767 - 0403.

Report ID: 00010\_766

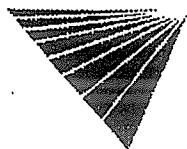
Date of Report: March 15, 1999

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MAP ID	RISK AT PROPERTIES IN THE SURROUNDING AREA (within 1/8 - 1 mile)	VISTA ID DISTANCE DIRECTION	A			B				C					
			NPL	CORRACTS(TSD)	SPL	TSD	CERGLIS/NFRAP	SCL	LUST	SWLF	ERNS	LG GEN	SM GEN	AST	UST
8	OLD LANSING BARBER COLLEGE 315 S. GRAND AVE LANSING, MI 48933	3729725 0.26 MI NE							X						
8	(VACANT LOT) 307 S CESAR CHAVEZ LANSING, MI 48933	7023194 0.26 MI NE							X						
9	CITY OF LANSING 124 W. MICHIGAN LANSING, MI 48933	6310478 0.33 MI NE							X						
10	ACCIDENT FUND OF MICH BLDG 232 CAPITAL AVE. LANSING, MI 48933	1733767 0.41 MI N						X							
10	MICHIGAN BELL TEL CO CAPITAL IONIA STS LANSING, MI 48933	271024 0.46 MI N					X								
11	334 SOUTH BUTLER BLVD. LANSING, MI 48915	7478322 0.41 MI W						X							
12	LANSING CENTER EAST CONSTRUCTION SITE 333 E MICHIGAN LANSING, MI 48933	5560850 0.44 MI NE							X						
12	LANSING CENTER 333 EAST MICHIGAN AVE LANSING, MI 48933	3510552 0.44 MI NE						X							
13	LBWL, OTTAWA STATION 209 OTTAWA LANSING, MI 48933	237679 0.44 MI NE						X							
14	FORMER CLARK STATION 1002 W ST JOSEPH ST LANSING, MI 48915	7103812 0.46 MI W							X						
15	BLAIR HOUSE REALTY 410 S CEDAR LANSING, MI 48912	3510009 0.47 MI E							X						
15	FORMER LOCATIONS OF SPARTAN INN 501 E KALAMAZOO LANSING, MI 48912	2541163 0.48 MI E							X						
16	MICHIGAN BELL 115 W IONIA LANSING, MI 48933	6598873 0.47 MI NE							X						



For more information call VISTA Information Solutions, Inc. at 1 - 800 - 767 - 0403.

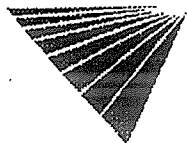
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UNGEOCODED SITES	VISTA ID	A			B					C				
		NPL	CORRACTS(TSD)	SPL	TSD	CERCLIS/NFRAP	SCL	LUST	SWLF	ERNS	LG GEN	SM GEN	AST	UST
MICH LIQUOR CONTROL COMMISSION 7285 PARSONS DRIVE LANSING, MI 48913	1753117													X
FORMER MARATHON #1236 1232 N MARTIN LUTHER KING BLVD LANSING, MI 48915	7023348							X						X
LINDELL DROP FORGE COMPANY 2830 S MARTIN LUTHER KING BLVD LANSING, MI 48901	7023349							X						X
CSX TRANSPORTATION INC 2900 N MARTIN LUTHER KING BLVD LANSING, MI 48906	7023350							X						X
SHELL SERVICE STATION 3333 MARTIN LUTHER KING BLVD LANSING, MI 48910	7023354							X						X
OLD CITY OF LANSING LDFL PAULS END OF PAULSON ST LANSING, MI 48901	308234					X								
QUALITY DAIRY CO. #17 6099 S MARTIN LUTHER KING BLVD LANSING, MI 48910	7023359							X						X
BUZY BEE MARKET (FORMER) SE CORNER OF LOGAN KALAMAZOO LANSING, MI 48909	7023294							X						X
WAVERLY SERVICE BLDG 38909 WEST ST JOE LANSING, MI	6598865							X						
SHAHEEN CHEVROLET 3901 S MARTIN LUTHER KING BLVD LANSING, MI 48910	7243447													X
SCHAFER BAKERIES INC. 2701 S MARTIN LUTHER KING BLVD LANSING, MI 48910	7243435													X
LOGAN DEVELOPMENT INC 6272 S MARTIN LUTHER KING BLVD LANSING, MI 48910	7243448							X						X
DEPT OF PUBLIC HEALTH 3500 N MARTIN LUTHER KING BLVD LANSING, MI 48910	7243444													X
METRO RECYCLING/LF COLEMAN WOOD STREETS LANSING, MI	1761649								X					
PRECISION TUNE OF LANSING 3615 S MARTIN LUTHER KING BLVD LANSING, MI 48910	6311707							X						X
MDOT-RIGHT OF WAY SAGINAW WEST OF BUTLER LANSING, MI 48915	7023416							X						X



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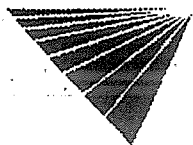
Report ID: 00010\_766

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UNGEOCODED SITES	VISTA ID	A			B				C					
		NPL	CORRACTS(TSD)	SPL	TSD	CERCLIS/NFRAP	SCL	LUST	SWLF	ERNS	LG GEN	SM GEN	AST	IUST
LANSING GENERAL HOSPITAL WAREHOU E 2915/3005 ALPHA ST ACCESS LANSING, MI 48910	2539400													X
CLARK SERVICE STATION #1474 3612 S MARTIN LUTHER KING BLVD LANSING, MI 48910	7243446													X



**RISK AT PROPERTIES IN THE SURROUNDING AREA (within 1/8 - 1 mile) CONT.**

<b>STATE LUST - State Leaking Underground Storage Tank / SRC# 5524</b>		<b>EPA/Agency ID:</b>	N/A
<b>Agency Address:</b>	FORMER COMMERCE BLDG 300 S CAPITOL LANSING, MI		
<b>Leak ID#:</b>	0-039439		
<b>Remediation Status:</b>	OPEN		

<b>VISTA Address:</b>	<b>LANSING STATE JOURNAL</b> 120 E LENAWEE ST LANSING, MI 48933	<b>VISTA ID#:</b>	237713
		<b>Distance/Direction:</b>	0.15 MI / E
		<b>Plotted as:</b>	Point

Map ID

4

<b>STATE UST - State Underground Storage Tank / SRC# 4947</b>		<b>Agency ID:</b>	0-014065
<b>Agency Address:</b>	LANSING STATE JOURNAL 120 E LENAWEE LANSING, MI 48919		
<b>Underground Tanks:</b>	1		
<b>Aboveground Tanks:</b>	NOT REPORTED		
<b>Tanks Removed:</b>	NOT REPORTED		

<b>STATE LUST - State Leaking Underground Storage Tank / SRC# 5524</b>		<b>EPA/Agency ID:</b>	N/A
<b>Agency Address:</b>	LANSING STATE JOURNAL 120 E LENAWEE LANSING, MI		
<b>Leak ID#:</b>	0-014065		
<b>Remediation Status:</b>	OPEN		

<b>VISTA Address:</b>	<b>STATE OF MICHIGAN</b> 515 W WASHTENAW ST LANSING, MI 48933	<b>VISTA ID#:</b>	1715544
		<b>Distance/Direction:</b>	0.17 MI / NW
		<b>Plotted as:</b>	Point

Map ID

5

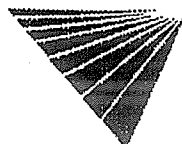
<b>STATE UST - State Underground Storage Tank / SRC# 4947</b>		<b>Agency ID:</b>	0-014721
<b>Agency Address:</b>	STATE OF MICHIGAN 515 W WASHTENAW ST LANSING, MI 48909		
<b>Underground Tanks:</b>	1		
<b>Aboveground Tanks:</b>	NOT REPORTED		
<b>Tanks Removed:</b>	1		

<b>VISTA Address:</b>	<b>B F GOODRICH TIRE STORE</b> 405 S GRAND AVE LANSING, MI 48933	<b>VISTA ID#:</b>	1739409
		<b>Distance/Direction:</b>	0.23 MI / E
		<b>Plotted as:</b>	Point

Map ID

6

<b>STATE UST - State Underground Storage Tank / SRC# 4947</b>		<b>Agency ID:</b>	0-006973
<b>Agency Address:</b>	B F GOODRICH TIRE STORE 405 S GRAND AVE LANSING, MI 48909		
<b>Underground Tanks:</b>	1		
<b>Aboveground Tanks:</b>	NOT REPORTED		
<b>Tanks Removed:</b>	1		



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Report ID: 00010\_766

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Date of Report: March 15, 1999

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**RISK AT PROPERTIES IN THE SURROUNDING AREA (within 1/8 - 1 mile) CONT.**

VISTA Address:	GMC BOC GROUP LANSING AUTO DIV 920 TOWNSEND LANSING, MI 48933	VISTA ID#:	1759892
		Distance/Direction:	0.25 MI / S
		Plotted as:	Point

Map ID

**7**

CORRACTS / SRC# 5514	EPA ID:	MID005356894
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Agency Address: GMC OLDSMOBILE DIV PLT 1  
920 TOWNSEND  
LANSING, MI 48933

Prioritization Status: MEDIUM

RCRA Facility Assessment Completed: YES

Notice of Contamination: NO

Determination of need For a RFI (RCRA Facility Investigation): YES

RFI Imposed: NO

RFI Workplan Notice of Deficiency Issued: NO

RFI Workplan Approved: NO

RFI Report Received: NO

RFI Approved: NO

No Further Corrective Action at this Time: NO

Stabilization Meseaures Evaluation: NO

CMS (Corrective Measure Study) Imposition: NO

CMS Workplan Approved: NO

CMS Report Received: NO

CMS Approved: NO

Date for Remedy Selection (CM Imposed): NO

Corrective Measures Design Approved: NO

Corrective Measures Investigation Workplan Approved: NO

Certification of Remedy Completion: NO

Stabilization Measures Implementation: NO

Stabilization Measures Completed: NO

Corrective Action Process Termination: NO

RCRA-TSD CORRACTS / SRC# 5514	EPA ID:	MID005356894
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Agency Address: GMC OLDSMOBILE DIV PLT 1  
920 TOWNSEND  
LANSING, MI 48933

Off-Site Waste Received: NO

Land Disposal: NO

Incinerator: NO

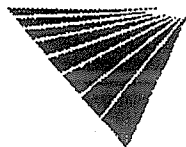
Storage/Treatment: YES

STATE LUST - State Leaking Underground Storage Tank / SRC# 5524	EPA/Agency ID:	N/A
---	----------------	-----

Agency Address: GMC BOC LANSING PLANT #1  
920 TOWNSEND  
LANSING, MI

Leak ID#: 0-013819

Remediation Status: OPEN



For more information call VISTA Information Solutions, Inc. at 1 - 800 - 767 - 0403.

Report ID: 00010\_766

Date of Report: March 15, 1999

Version 2.6.1

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RISK AT PROPERTIES IN THE SURROUNDING AREA (within 1/8 - 1 mile) CONT.

VISTA Address:	OLD LANSING BARBER COLLEGE 315 S. GRAND AVE LANSING, MI 48933	VISTA ID#:	3729725
		Distance/Direction:	0.26 MI / NE
		Plotted as:	Point

Map ID

8

STATE LUST - State Leaking Underground Storage Tank / SRC# 5524	EPA/Agency ID:	N/A
Agency Address:	OLD LANSING BARBER COLLEGE 315 S. GRAND AVE LANSING, MI 0-036300	
Leak ID#:	0-036300	
Remediation Status:	CLOSED	

VISTA Address:	(VACANT LOT) 307 S CESAR CHAVEZ LANSING, MI 48933	VISTA ID#:	7023194
		Distance/Direction:	0.26 MI / NE
		Plotted as:	Point

Map ID

8

STATE LUST - State Leaking Underground Storage Tank / SRC# 5524	EPA/Agency ID:	N/A
Agency Address:	(VACANT LOT) 307 S CESAR CHAVEZ LANSING, MI 0-036275	
Leak ID#:	0-036275	
Remediation Status:	OPEN	

VISTA Address:	CITY OF LANSING 124 W. MICHIGAN LANSING, MI 48933	VISTA ID#:	6310478
		Distance/Direction:	0.33 MI / NE
		Plotted as:	Point

Map ID

9

STATE LUST - State Leaking Underground Storage Tank / SRC# 5524	EPA/Agency ID:	N/A
Agency Address:	CITY OF LANSING 124 W. MICHIGAN LANSING, MI 0-007848	
Leak ID#:	0-007848	
Remediation Status:	CLOSED	

VISTA Address:	ACCIDENT FUND OF MICH BLDG 232 CAPITAL AVE LANSING, MI 48933	VISTA ID#:	1733767
		Distance/Direction:	0.41 MI / N
		Plotted as:	Point

Map ID

10

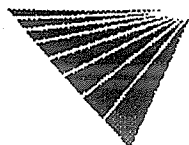
SCL - State Equivalent CERCLIS List / SRC# 4888	EPA/Agency ID:	330476
Agency Address:	ACCIDENT FUND OF MICH BLDG 232 CAPITAL AVE. LANSING, MI 48901	
Status:	UNKNOWN	
Facility Type:	NOT AVAILABLE	
Lead Agency:	NOT AVAILABLE	
State Status:	INTERIM RESPONSE IN PROGRESS	

VISTA Address:	MICHIGAN BELL TEL CO CAPITOL IONIA STS LANSING, MI 48933	VISTA ID#:	271024
		Distance/Direction:	0.46 MI / N
		Plotted as:	Point

Map ID

10

NFRAP / SRC# 5279	EPA ID:	MID981089378
Agency Address:	MICHIGAN BELL TELEPHONE COMPANY CAPITOL IONIA STREET LANSING, MI 48933	
Alias Name:	MICHIGAN BELL TEL CO	



For more information call VISTA Information Solutions, Inc. at 1 - 800 - 767 - 0403.

Report ID: 00010\_766

Version 2.6.1

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RISK AT PROPERTIES IN THE SURROUNDING AREA (within 1/8 - 1 mile) CONT.

VISTA Address:	LANSING CENTER EAST CONSTRUCTION SITE 333 E MICHIGAN LANSING, MI 48933	VISTA ID#:	5560850
		Distance/Direction:	0.44 MI / NE
		Plotted as:	Point

Map ID

12

STATE LUST - State Leaking Underground Storage Tank / SRC# 5524	EPA/Agency ID:	N/A
Agency Address:	LANSING CENTER EAST CONSTRUCTION 333 E MICHIGAN LANSING, MI	
Leak ID#:	0-038171	
Remediation Status:	CLOSED	

VISTA Address:	LANSING CENTER 333 EAST MICHIGAN AVE LANSING, MI 48933	VISTA ID#:	3510552
		Distance/Direction:	0.44 MI / NE
		Plotted as:	Point

Map ID

12

SCL - State Equivalent CERCLIS List / SRC# 4888	Agency ID:	330431
Agency Address:	SAME AS ABOVE	
Status:	UNKNOWN	
Facility Type:	NOT AVAILABLE	
Lead Agency:	NOT AVAILABLE	
State Status:	FINAL CLEANUP	

VISTA Address:	LBWL OTTAWA STATION 209 OTTAWA LANSING, MI 48933	VISTA ID#:	237679
		Distance/Direction:	0.44 MI / NE
		Plotted as:	Point

Map ID

13

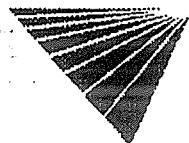
SCL - State Equivalent CERCLIS List / SRC# 4888	Agency ID:	330008
Agency Address:	LBWL OTTAWA STATION 209 OTTAWA LANSING, MI	
Status:	UNKNOWN	
Facility Type:	NOT AVAILABLE	
Lead Agency:	NOT AVAILABLE	
State Status:	INTERIM RESPONSE IN PROGRESS	

VISTA Address:	FORMER CLARK STATION 1002 W ST JOSEPH ST LANSING, MI 48915	VISTA ID#:	7103812
		Distance/Direction:	0.46 MI / W
		Plotted as:	Point

Map ID

14

STATE LUST - State Leaking Underground Storage Tank / SRC# 5524	EPA/Agency ID:	N/A
Agency Address:	FORMER CLARK STATION 1002 W ST JOSEPH ST LANSING, MI	
Leak ID#:	5-002070	
Remediation Status:	OPEN	



For more information call VISTA Information Solutions, Inc. at 1 - 800 - 767 - 0403.

Report ID: 00010\_766

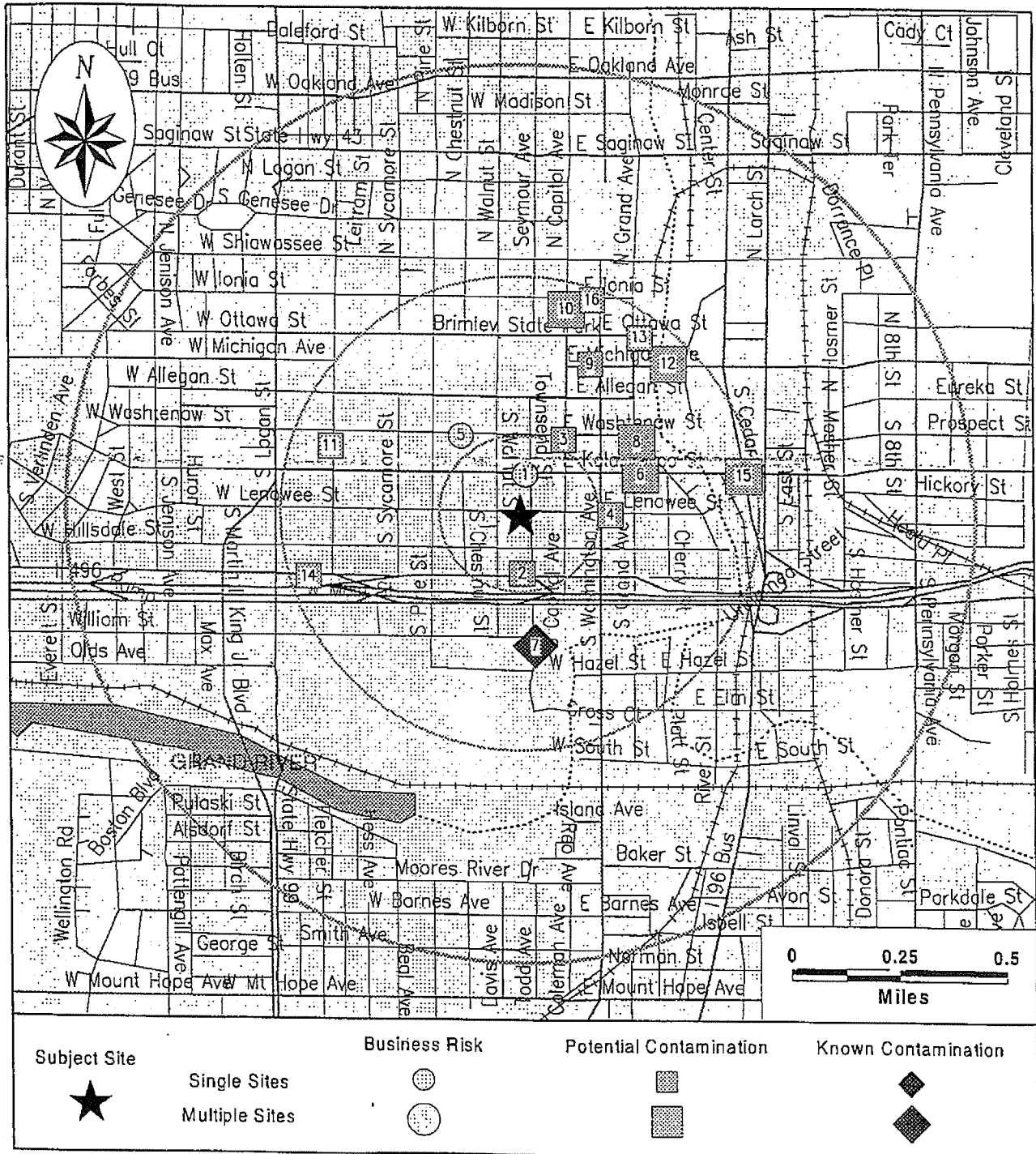
Version 2.6.1

Date of Report: March 15, 1999

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# REAL ESTATE TRANSACTION SCREEN REPORT V

## Total Area Map



For More Information Call VISTA Information Solutions, Inc. at 1 - 800 - 767 - 0403  
 Report ID: 00010\_766 Date of Report: March 15, 1999

SCL  
SRC#: 4888

VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
The agency release date for Sites of Contamination ACT-307 was April, 1998.

This database is provided by the Department of Natural Resources, Environmental Response Division. The agency may be contacted at: 517-373-4800.

The Michigan Environmental Response Act (Act 307), provides for the identification, risk assessment, and evaluation of sites of environmental contamination in the State. Under the Act, proposed lists of contamination sites are submitted to the Legislature in November of each year. Historically, one list identified all known sites requiring further evaluation and interim response activity known as the "Evaluation and Interim Response List (Priority List One)" and the second list identified sites where response actions were ready to be undertaken, known as "Priority List Two". A new risk assessment, the Site Assessment Model (SAM) was adopted in July, 1990, and was used to score all proposed sites. The Act 307 list dated November, 1992 also included the Leaking Underground Storage Tank sites reported by the DNR. These sites are listed on the LUST portion of this report. %MNFLHWP.MEL% Vista utilizes information from the Master Entity Database for the following lists: the Permanent List of Priorities (PLP), Hazardous Waste Generator/Investigation and Cleanup List (HWIC), De-listed Sites from the Permanent List of Priorities (DPLP), Closed Landfill Sites Undergoing Cleanup (LCP), List of sites where there is a potential for ground water contamination (Other), and Sites where soil or groundwater contamination or potential contamination is present (MN-NFA).

RCRA-TSD  
SRC#: 5514

VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
The agency release date for HWDMS/RCRIS was November, 1998.

~~The EPA's Resource Conservation and Recovery Act (RCRA) Program identifies and tracks hazardous waste from the point of generation to the point of disposal. The RCRA Facilities database is a compilation by the EPA of facilities which report generation, storage, transportation, treatment or disposal of hazardous waste. RCRA TSDs are facilities which treat, store and/or dispose of hazardous waste.~~

SWLF  
SRC#: 2947

VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
The agency release date for Inactive Solid Waste Facilities List was January, 1996.

This database is provided by the Department of Natural Resources, Solid Waste Program Section. The agency may be contacted at: 517-335-4035.

SWLF  
SRC#: 5424

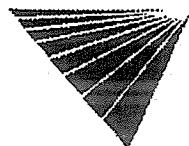
VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
The agency release date for Active Solid Waste Facilities List was November, 1998.

This database is provided by the Department of Natural Resources, Solid Waste Program Section. The agency may be contacted at: 517-335-4035.

SWLF  
SRC#: 5424

VISTA conducts a database search to identify all sites within 1/2 mile of your property.  
The agency release date for Transfer Stations List was November, 1998.

This database is provided by the Department of Natural Resources, Waste Management Division. The agency may be contacted at: 517-335-4035.



UST's  
SRC#: 4947

VISTA conducts a database search to identify all sites within 1/4 mile of your property.  
The agency release date for Registered Underground Storage Tanks was May, 1998.

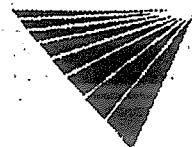
This database is provided by the Department of Environmental Quality, UST Division. The agency may be contacted at: 517-335-8168; Caution-Many states do not require registration of heating oil tanks, especially those used for residential purposes.

AST's  
SRC#: 3757

VISTA conducts a database search to identify all sites within 1/4 mile of your property.  
The agency release date for Registered Aboveground Storage Tanks was May, 1997.

This database is provided by the Department of Environmental Quality, UST Division. The agency may be contacted at: 517-322-1681.

End of Report









LENAWEE

ST. W.

TOWN SEND

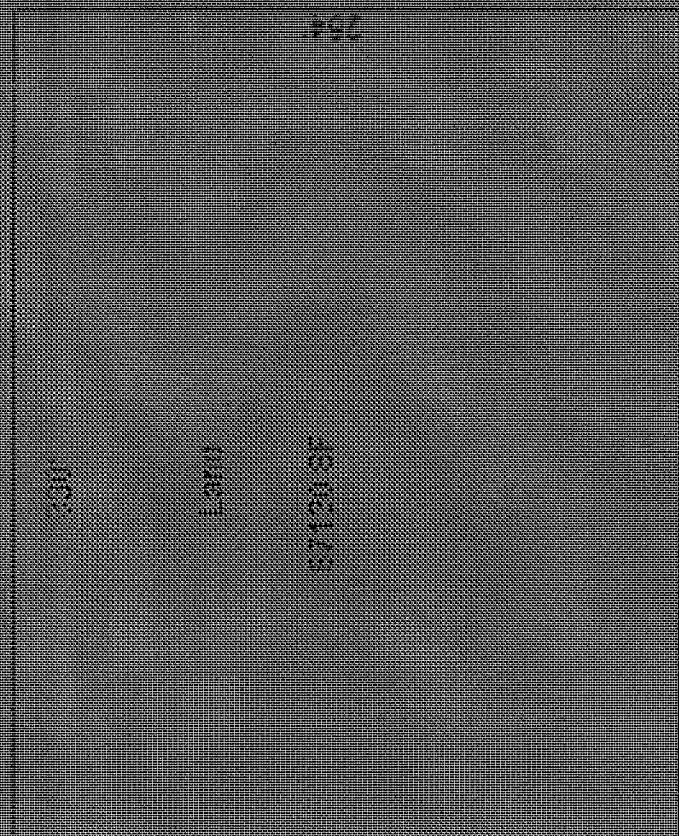
HILLSDALE

ST. W.

W LENA WEE ST

S WALNUT ST

TOWNS END ST



Desc. of Bldg/Section: Calculator Occupancy: Apartment				<<<<<      Calculator Cost Computations      >>>>> Class: C      Quality: Good      Percent Adj: +0								
Class: C Floor Area: Stories Above Grd: Average Sty Hght : Bsmnt Wall Hght :				Construction Cost <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>High</td> <td>Above Ave.</td> <td>Ave.</td> <td>X</td> <td>Low</td> </tr> </table>				High	Above Ave.	Ave.	X	Low
High	Above Ave.	Ave.	X	Low								
** ** Calculator Cost Data      ** ** Quality: Good      Adj: +0      \$/SqFt:0.00 Heat#1: Electric, Cable or Baseboard      0% Heat#2: Electric, Cable or Baseboard      0% Ave. SqFt/Story: Ave. Perimeter: Has Elevators:				0 Stories Number of Stories Multiplier: 1.000 Average Height per Story: 0 Height per Story Multiplier: 0.950 Ave. Floor Area: Perimeter: 0 Perim. Multiplier: 1.000 Refined Square Foot Cost for Upper Floors: 75.57 County Multiplier: 1.26, Final Square Foot Cost for Upper Floors = 95.221 Total Floor Area: Base Cost New of Upper Floors = Reproduction/Replacement Cost = Eff.Age:5      Phy.%Good/Abnr.Phy./Func./Econ./Overall %Good: 90 /100/100/100/90.0 Total Depreciated Cost =								
*** Basement Info *** Area: Perimeter: Type: Heat:				* Mezzanine Info * Area #1: Type #1: Area #2: Type #2:								
* Sprinkler Info * Area: Type:												
Comments:  												

(1) Excavation/Site Prep:		(7) Interior:		(11) Electric and Lighting:		(39) Miscellaneous:	
(2) Foundation:		(8) Plumbing:		Outlets:		Fixtures:	
X Poured Conc.	Brick/Stone	Block	Many Above Ave.	Average Typical	Few Average Many Unfinished Typical	Few Average Many Unfinished Typical	
(3) Frame:			Total Fixtures 3-piece Baths 2-piece Baths Shower Stalls Toilets		Flex Conduit Rigid Conduit Armored Cable Non-Metallic Bus Duct		Incandescent Fluorescent Mercury Sodium Vapor Transformer
(4) Floor Structure:			(9) Sprinklers:		(13) Roof Structure:		Slope=0
(5) Floor Cover:			(10) Heating and Cooling:		(14) Roof Cover:		
			Gas Oil		Coal Stoker		Hand Fired Boiler
(6) Ceiling:							
				(40) Exterior Wall:		Thickness	Bsmnt Insul.

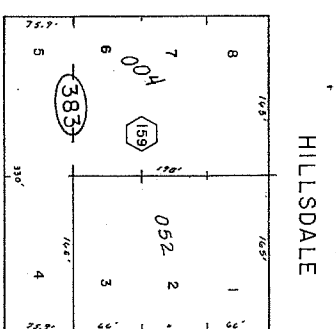
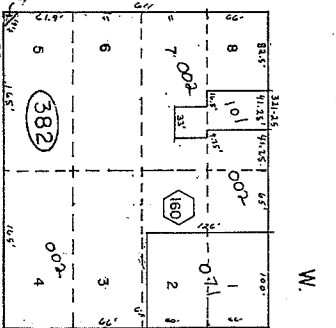
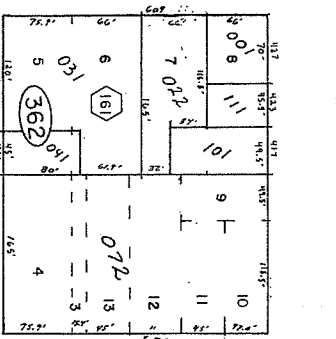
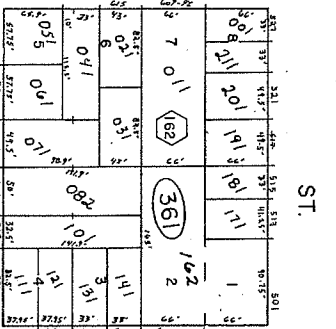
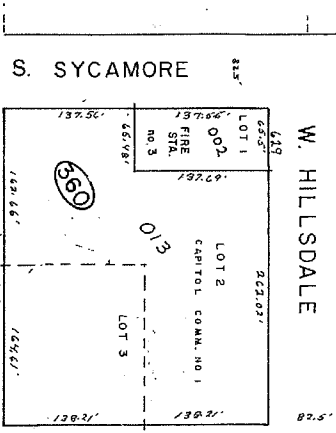
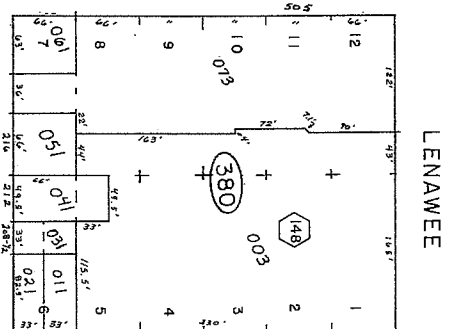
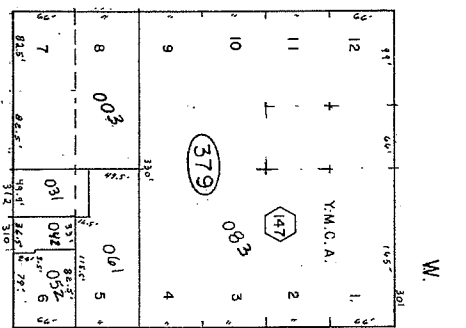
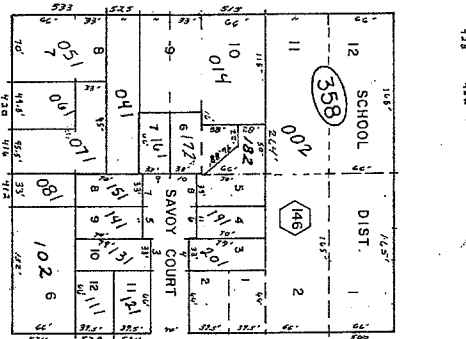
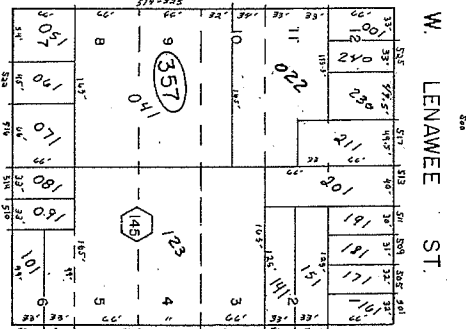
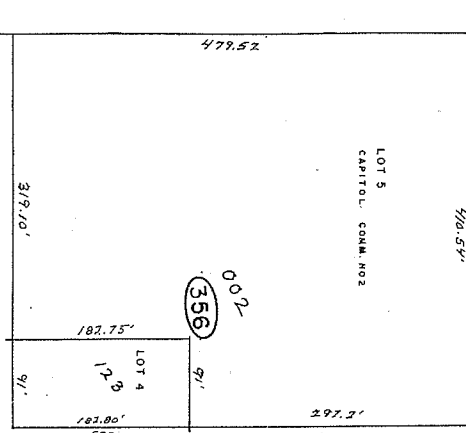
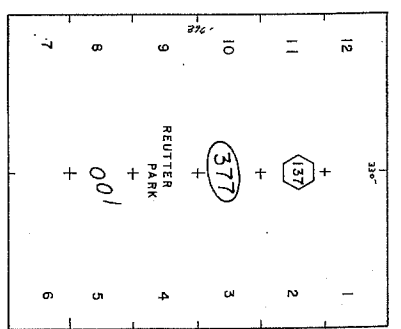
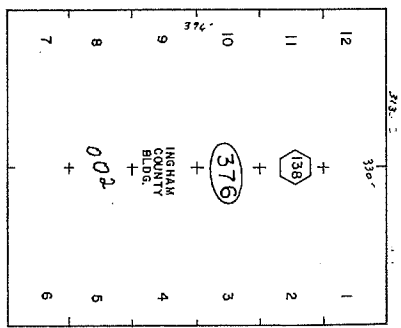
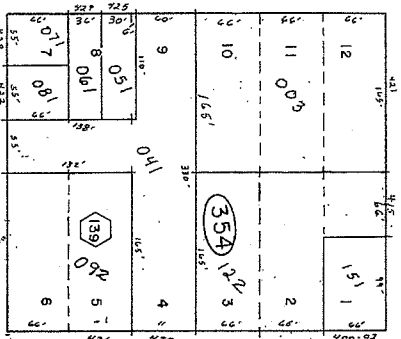
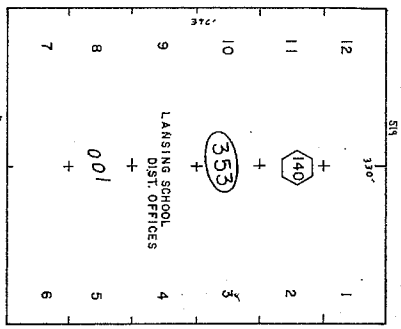
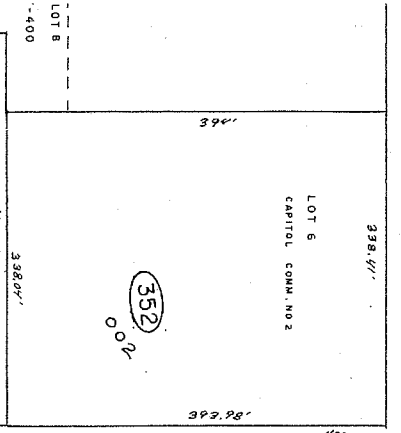
\*\*\*Information herein deemed reliable but not guaranteed\*\*\*

KALAMAZOO

ST.

W.

KALAMAZOO



ST. JOSEPH

ST.

SEE 3301-21-1007

W.

S. SYCAMORE

S. PINE

S. CHESTNUT

S. WALNUT

TOWNSEND

S. CAPITOL

ST.

ST.

AVE.

W. HILLSDALE

ST.

W.

HILLSDALE

W. LENAWEE ST.

W.

LENAWEE

**BASELINE ENVIRONMENTAL ASSESSMENT  
FORMER YMCA PROPERTY  
301 W. LENAWEE STREET  
LANSING, MICHIGAN 48933**

*for*

**ELLE ENTERPRISES, LLC  
1651 W. LAKE LANSING ROAD  
EAST LANSING, MI 48823**

**AKT PEERLESS PROJECT NO. 5700L/L2-5-26  
MARCH 10, 2008**





MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY  
REMEDIATION AND REDEVELOPMENT DIVISION

FOR DEQ USE ONLY

BEA Disclosure # \_\_\_\_\_

DISCLOSURE OF A BASELINE ENVIRONMENTAL ASSESSMENT  
(FORM EQP4446 (REV. 4/03))

(Under the authority of Part 201, 1994 Act 451, as amended, and the Rules promulgated thereunder)

**DO NOT use this form for requesting a Baseline Environmental Assessment ("BEA") adequacy determination, OR if the property is not a facility, OR if the BEA was complete before the effective date of the BEA rules. Please answer the following questions as completely as possible.**

Name and address of submitter\*  
(individual or legal entity):

Elle Enterprises, L.L.C.  
1651 West Lake Lansing Road  
East Lansing, MI 48823

Status relative to the property:

	Former	Current	Prospective
Owner*	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Operator*	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Address/location of property where  
BEA was conducted:

301 West Lenawee Street  
Lansing, Michigan

County: Ingham

**Provide the property tax identification number(s) or, if applicable, the ward and item number(s) for the property identified in the BEA. Required pursuant to Rule 907.**  
33-01-01-16-379-083

Contact person: Mr. Dan Essa

Telephone #: 571.333.1628

If the address of the person seeking liability protection above is different from the address that should be used to correspond with the contact person, please provide the contact person's address:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Check the appropriate response to each of the following questions.

1. Is it known that the source of contamination at the property is primarily from any of the following?

- A leaking underground storage tank (UST) regulated under Part 213, 1994 PA 451, as amended.
- A licensed landfill or solid waste management facility.
- A licensed hazardous waste treatment, storage, or disposal facility.
- Oil and gas development related activities.

YES	NO
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

The source of the release that resulted in this property becoming a "facility" will determine which DEQ division will maintain a file regarding this BEA.

2. Based on the Part 201 Rules, this BEA is a:

Category N	<input checked="" type="checkbox"/>
Category D	<input type="checkbox"/>
Category S	<input type="checkbox"/>

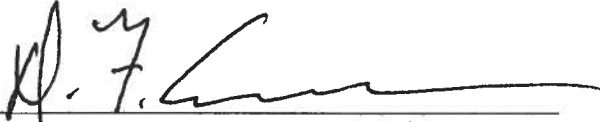
3. Is the property at which the BEA was conducted a "facility"\* as defined by Section 20101? If the answer to this question is NO, do not submit the BEA to the DEQ.

YES	NO
<input checked="" type="checkbox"/>	<input type="checkbox"/>



4. Was the BEA conducted\* prior to or within 45 days after the date of purchase\*, occupancy, or foreclosure of the property, whichever is earliest, and completed\* not more than 15 days after the date required by Section 20126(1)(c) or Rule 299.5903(8)?  
If the answer to either portion of this question is no, you are ineligible for an exemption from liability based on the BEA. YES NO  
☒ ☐
5. Is the BEA being disclosed to the DEQ no later than 8 months after the earliest of the date of purchase, occupancy, or foreclosure? All disclosures pursuant to Rule 919(3) must be submitted to the DEQ no later than 8 months after the earliest of the date of purchase, occupancy, or foreclosure. YES NO  
☒ ☐
6. Are any USTs or abandoned or discarded containers identified in the BEA? If yes, this information must be provided on Form EQP4476. YES NO  
☐ ☒
7. Does this BEA rely on an isolation zone or an engineering control that requires an affidavit pursuant to Rule 299.5909(3) or 299.5909(4)? If yes, a completed affidavit, Form EQP4479, must be attached or the BEA will not be considered complete. YES NO  
☐ ☒

With my signature below, I certify that the enclosed BEA and all related materials are complete and accurate to the best of my knowledge and belief. I understand that intentionally submitting false information to the DEQ is a felony and may result in fines up to \$25,000 for each violation.

Signature of Submitter:   
(Person legally authorized to bind the person seeking liability protection)

03.11.08  
Date

Name (Typed or Printed) Dan Essa

Title ~~Member~~ Agent

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### TABLES

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(continued)

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APPENDIX B .....AKT PEERLESS' PHASE I ESA REPORT

APPENDIX C .....AKT PEERLESS' PHASE II SUBSURFACE INVESTIGATION

**BASELINE ENVIRONMENTAL ASSESSMENT  
Conducted Pursuant to Section 20126(1)(c)  
of 1994 PA 451, Part 201, as amended,  
and the rules promulgated thereunder**

**FORMER YMCA PROPERTY  
301 W. LENAWEE STREET  
LANSING, MICHIGAN**

**AKT Peerless Project No. 5700L/L2-5-26**

**1.0 IDENTIFICATION OF AUTHOR AND DATE BEA WAS CONDUCTED AND COMPLETED**

AKT Peerless Environmental Services (AKT Peerless) has prepared a Baseline Environmental Assessment (BEA) on behalf of Elle Enterprises, LLC (hereinafter the "Submitter"). The persons primarily responsible for the data assembly, interpretation, and technical conclusions are Ms. Jennifer E. Bowyer and Mr. David A. Van Haaren of AKT Peerless. The BEA was conducted on February 21, 2008 and was completed on March 10, 2008, with final administrative review.

**2.0 INTRODUCTION & INTENDED HAZARDOUS SUBSTANCE USE**

This BEA is conducted pursuant to Section 20126(1)(c) of the Natural Resources and Environmental Protection Act (NREPA), of 1994, PA 451, as amended and the rules promulgated thereunder. The BEA reasonably defines known existing environmental conditions and circumstances at the subject property so that in the event of a subsequent release, there is a means of distinguishing a new release from existing contamination.

This BEA was completed as a Category "N" BEA in accordance with the Michigan Department of Environmental Quality's (MDEQ), *Instructions for Preparing and Disclosing Baseline Environmental Assessments and Section 7a Compliance Analyses to the Michigan Department of Environmental Quality and for Requesting Optional Determinations*, dated March 11, 1999.

The Submitter purchased the subject property on February 28, 2008. The Submitter intends to demolish the existing structure and redevelop the subject property for commercial use. The Submitter does not intend to use, store or manage hazardous substances in significant quantities at the subject property. The Submitter is submitting this BEA to the MDEQ to qualify for an exemption from liability under Part 201, NREPA.

### **3.0 PROPERTY DESCRIPTION**

The subject property contains a multi-story building formerly utilized by the Young Men's Christian Association (YMCA) for housing, recreation, and office space. The residential portion of the subject building was vacated around 1990 and the recreational and remaining portions of the subject building were vacated in January 2003.

The subject property is located in the southwest quadrant of Section 16 in the City of Lansing (T.4N./R.2W.), Ingham County, Michigan. The subject property is situated south of West Lenawee Street and between Townsend and South Walnut Streets. It consists of a rectangular parcel that contains approximately 2.00 acres. The subject property's parcel identification number is 33-01-01-16-379-083. Refer to Figure 1, Topographic Location Map.

### **3.1 LEGAL DESCRIPTION**

Refer to Appendix A for a copy of the Legal Description for the subject property.

### **3.2 PROPERTY AND SURROUNDING AREA DESCRIPTION**

The subject property is currently developed as commercial and is located in an area of Lansing that is characterized by commercial and residential properties, paved roadways, storm and sanitary sewer, municipal water, electricity, curbs, etc. Photographs of the subject property, taken by Melissa Robishaw of AKT Peerless on November 14, 2007, are provided in the attached Phase I ESA, Appendix B.

The subject property is developed with a 6-story, 100,000 square-foot (total) building. Asphalt- and gravel-paved areas utilized for vehicle parking, are located to the west and south of the subject building. Refer to Figure 3, Sample Location Map.

The subject property is approximately level with adjoining properties. The surrounding area slopes gradually downward to the south/southeast, toward the Grand River. The following table lists adjacent properties and their current uses, as well as any potential environmental concerns observed by AKT Peerless:

Direction	Address	Current Use / Occupant	Potential Concerns
north	303 West Kalamazoo Street	office building / Grady Porter Building of Ingham County Offices	none observed
northeast	400 South Capitol Avenue	recreational / City of Lansing Park	none observed
east	505 Townsend Street	Residential / The Porter Apartment Building	none observed
south	524/526 Townsend Street	Commercial / dentist and Capitol Services	none observed
	South Walnut Street	parking lot	none observed
southwest	524 South Walnut Street	Residential / not determined	none observed
west	South Chestnut Street	Parking lot / Owner: Lansing School District	none observed
Northwest	426 South Walnut Street	Office building / Michigan Association of Community Health	none observed

### 3.3 PROPERTY HISTORY

The subject property was developed with residences and offices beginning in at least 1898. In 1950 the YMCA residential and recreational building was constructed. Between 1950 and 1997 the remaining houses on the subject property were demolished. The residential portion of the subject building was vacated around 1990. The recreational portion of the subject building was vacated in 2003 and the building has been vacant since that time.

Municipal storm water collection and sewage was available in the area since 1891 and 1906, respectively. Municipal water and electric, were provided to the subject property since the early 1950s, and natural gas was provided in 1977.

### 3.4 PREVIOUS ENVIRONMENTAL INVESTIGATIONS

#### 3.4.1 Phase I Environmental Site Audit, Snell Environmental Group, Jan.1991

A Phase I Environmental Site Audit was prepared for YMCA of Lansing by Snell Environmental Group, Inc. Snell Environmental Group's audit concluded that, other than a concern regarding asbestos, no further environmental investigation was recommended for the subject property. The report described a substantial amount of asbestos containing material (ACM) in the insulation, on the steam and hot and cold water lines, on the air handlers, the heat exchanger, some wall insulation, and in the green and brown floor tiles.



### **3.4.2 Report of Asbestos Evaluation, Snell Environmental Group, Feb. 1991**

A Report of Asbestos Evaluation dated February 1991 was prepared for YMCA of Central Lansing by Snell Environmental Group, Inc. The Report of Asbestos Evaluation concludes that there is a "small amount" of asbestos containing material found within the subject building and all friable asbestos containing materials should be removed prior to renovation and demolition.

### **3.4.3 Transaction Screen, P.M. Environmental, March 1999**

A Transaction Screen dated March 25, 1999 was prepared for Mr. Tony Fragale of YMCA of Lansing by PM Environmental, Inc. The Transaction Screen was performed for a vacant lot located at 319 West Lenawee Street, City of Lansing, Michigan. This property is now a portion of the subject property located west of the subject building. The transaction screen indicated that the structure on the property was demolished and fill material was brought onto the subject property in approximately 1998. This fill material originated from a gravel pit not known to contain contamination. According to the Transaction Screen, no demolition debris from the former structure remains at the subject property.

### **3.4.4 Phase I ESA, AKT Peerless Environmental Services, Nov. 2007**

AKT Peerless completed a Phase I ESA of the former YMCA property on November 29, 2007. AKT Peerless' Phase I ESA included, but was not limited to, a site walkover, review of government records, assembly and review of data from area maps and directories, assessment of aerial photographs, and interviews with the site owner, others familiar with the subject property, and government officials. Upon review of the information collected, the following RECs were identified for the subject property:

1. A machine shop was observed on the subject property on a 1913 fire insurance map. Hazardous substances and petroleum products may have been used in connection with this machine shop. Potential concerns associated with this historical use of the subject property include the potential for introduction of petroleum products and/or hazardous substances to the subject property via spills, releases and/or poor material handling/disposal practices.
2. Hazardous substances and petroleum products, as well as unidentified substances and containers exist on the subject property, especially within the basement of the subject building. AKT Peerless observed substances in unlabeled containers and evidence of leaking on the floor of the basement of the subject building. Due to the lack of electric lighting, AKT Peerless may not have had the opportunity to observe floor drains within the subject building.
3. The adjoining property to the north was used as a gasoline station between 1939 and 1970 and had contained three USTs. One confirmed release was discovered on October 13, 1999. Impacted soil was removed from the property in October 1999. According to a January 10, 2000 report prepared by SME, the extent of impact the leaking USTs made upon the soils found in the northwestern part of the site in the shallow soil has been defined to the south and

east. The extent of impact to the north and west has not been defined. Soil and groundwater collected from two historical hand dug wells indicated that debris in the northern well was impacted with gasoline constituents. Soil and groundwater samples from the south well indicated elevated levels of lead.

In addition to the RECs noted above, the following areas of potential concern were also noted during AKT Peerless Phase I ESA:

- Based on the age of the subject building, fluorescent light ballasts noted during the site inspection may contain PCBs. It is AKT Peerless' opinion these fixtures represent a minimal environmental risk to the subject property. However, upon replacement of the fixtures during future renovations and/or demolition, the ballasts should be evaluated and, if PCB-containing, handled in accordance with applicable regulations.
- AKT Peerless was unable to determine if former structures on the subject property utilized water wells and/or septic systems.
- Natural gas was provided to the subject building beginning in at least 1977. Also, fire insurance maps from the years 1951, 1953, 1966, and 1972 depicted two vent pipes located on the subject building. The vent pipes may have been used for fuel oil storage tanks. The subject property has been developed with residential structures since at least 1898. It is possible that the subject building and/or former structures on the subject property utilized an alternative heating source (i.e. coal, fuel oil, wood, etc.) prior to the connection of natural gas.
- Based on the age of the subject building, hydraulic-powered elevators identified may contain PCBs. Upon future renovations and/or demolition, the hydraulic fluid should be evaluated and, if PCB-containing, handled in accordance with applicable regulations.
- A Phase I Environmental Site Audit was performed for the subject property in 1991. The audit reported a concern regarding asbestos containing materials within the subject building. The report described a substantial amount of asbestos containing material in the insulation, on the steam and hot and cold water lines, the air handlers, the heat exchanger, some wall insulation, and in the green and brown floor tiles.

Based on the all of the above information, it was recommended that Phase II testing be performed to evaluate the RECs identified for the subject property.

A copy of AKT Peerless' Phase I ESA report is included in Appendix B.

### **3.5 AKT PEERLESS' FEBRUARY, 2007 PHASE II SITE INVESTIGATION**

On February 15, 16 and 18, 2008 AKT Peerless conducted a Phase II subsurface investigation (SI) to evaluate the recognized environmental conditions identified in Phase I ESA completed on November 29, 2007.

AKT Peerless completed the following scope of work:

- Conduct a geophysical survey of the western portion of the subject property, to identify potential areas of subsurface anomaly. Possible anomalies include backfilled basement locations and underground storage tanks (USTs);
- Advance 5 soil borings within or related to anomalous areas identified in the geophysical survey, to a maximum depth of 20 feet below ground surface (bgs);
- Advance one soil boring to a maximum depth of 20 feet (bgs) at the subject property to evaluate REC #1, the former machine shop location and potential contamination associated with operations there. (This boring was also located within an area identified by the geophysical survey);
- Advance one boring to a maximum depth of twenty feet bgs and install one temporary monitoring well at the subject property to evaluate REC #3, the former gasoline station on the northern adjoining property. (This boring was also located in an area identified by the geophysical survey);
- Collect seven soil samples and one water sample;
- Submit the seven soil samples and one water sample to a fixed-base, independent laboratory for chemical analysis;
- Collect three QA/QC samples and submit to a fixed-base, independent laboratory for chemical analysis.

### **3.5.1 Geophysical Survey, February 15 and 16, 2008, by WorkSmart**

On February 15 and 16, 2008, WorkSmart, Inc. (WorkSmart) conducted a Ground Penetrating Radar (GPR) survey of the subject property, including the parking lot(s) to the west of the subject building, and the gravel area to the southeast of the subject building. The purpose of the GPR survey was to evaluate for the presence of subsurface anomalies, including backfilled basements and/or USTs.

WorkSmart conducted its GPR survey utilizing a USRADAR SPR, which is equipped with a 250- or 500-megahertz (MHz) dipole antenna mounted on a trolley to scan the survey area. The area was surveyed on a one-meter grid pattern. WorkSmart identified seven (7) areas of subsurface disturbance consistent with filled basements. The locations of the anomalies are shown on the Figure 2, Geophysical Survey Area Map, and are described further in WorkSmart's Subsurface Imaging Report, included in the Phase II SI report in Appendix C.

WorkSmart did not identify any other anomalies consistent with USTs in the survey area conducted at the subject property.

### **3.5.2 Soil Analysis**

On February 18, 2008, AKT Peerless' conducted soil sampling to evaluate the RECs identified in connection with the subject property. To evaluate the RECs, AKT Peerless: (1) advanced 7 soil

borings to a maximum depth of 20 feet bgs, (2) collected 7 soil samples; and (3) submitted soil samples for laboratory analyses. Soil borings were completed following the “*Standard Guide for Direct Push Soil Sampling for Environmental Site Characterizations*,” ASTM Designation D-6282. Refer to Appendix C for soil boring logs included in AKT Peerless’ Phase II SI.

Soil samples were submitted for laboratory analyses of the following target analytes: volatile organic compounds (VOCs), polynuclear aromatic hydrocarbons (PNAs), MDEQ Leaded Gasoline parameters (BTEX, TMB isomers, methyl-tert-butyl-ether, ethylene dibromide, naphthalene, 2-methylnaphthalene, and lead), and “Michigan 10” Metals (arsenic, barium, cadmium, chromium, copper, lead, mercury, selenium, silver, and zinc). The following table summarizes each REC, the investigation activities, and the laboratory analyses performed:

Recognized Environmental Condition(s)	Boring Identification	Analytical Parameter(s)
REC #3 – filling station on adjoining property to the north	B-1 B-3	MDEQ Leaded Gasoline Parameters: BTEX (benzene, toluene, ethylbenzene, and xylenes), TMB (trimethylbenzene) isomers, methyl-tert-butyl-ether (MTBE), ethylene dibromide (EDB), dichloroethane (DCA), naphthalene, 2-methylnaphthalene, and lead
REC #1 – former machine shop	B-2	volatile organic compounds (VOCs), polynuclear aromatic hydrocarbons (PNAs), “Michigan 10” Metals (arsenic, barium, cadmium, chromium, copper, lead, mercury, selenium, silver, zinc)
backfilled basements	B-3	
	B-4	
	B-5	
	B-6	
	B-7	

Figure 3, Sample Location Map, depicts the locations of soil borings advanced on the subject property.

### 3.5.3 Groundwater Analysis

On February 18, 2008, AKT Peerless’ conducted groundwater sampling to evaluate the RECs identified in connection with the subject property. To evaluate the RECs, AKT Peerless: (1) oversaw the advancement of 7 soil borings to a maximum depth of 20 feet bgs; (2) installed 1 temporary monitoring well at a select boring location; (3) collected 1 groundwater sample from the temporary monitoring well; and (4) submitted the water sample for laboratory analyses. The borings were completed following the “*Standard Guide for Direct Push Soil Sampling for Environmental Site Characterizations*,” ASTM Designation D-6282.

Water samples were submitted for laboratory analyses of the following target analytes: MDEQ Leaded Gasoline Parameters. The following table summarizes each REC, the investigation activities, and the laboratory analyses performed:



Recognized Environmental Condition(s)	Proposed Sample Point(s)	Analytical Parameter(s)
REC #3 – filling station on adjoining property to the north	B-1-1WS	MDEQ Leaded Gasoline Parameters: BTEX (benzene, toluene, ethylbenzene, and xylenes), TMB (trimethylbenzene) isomers, methyl-tert-butyl-ether (MTBE), ethylene dibromide (EDB), dichloroethane (DCA), naphthalene, 2-methylnaphthalene, lead

Refer to Figure 3, Sample Location Map for temporary well locations.

### 3.5.4 Analytical Results

Drilling activities took place on February 18, 2007. Soil samples were taken at depths just above groundwater, or where PID readings were elevated and indicated possible cause for concern. The temporary monitor well was installed so the 5-foot screen intersected the water table. Low-flow samples were taken after development of each temporary well. After sampling, the wells were removed and the borings abandoned.

Laboratory analytical results exhibited concentrations of the following target analytes exceeding current Part 201 Residential and Commercial I Generic Cleanup Criteria:

- Chromium, mercury, selenium, silver, 2-methylnaphthalene, and naphthalene are present in soil at concentrations exceeding MDEQ GRCC. Contaminant concentrations exceed the residential drinking water protection (RDWP), and/or groundwater surface water interface protection (GSIP) criteria.
- Chromium, lead, mercury, and silver are present in groundwater at concentrations exceeding MDEQ GRCC. Contaminant concentrations exceed the residential drinking water criteria (RDW), and/or groundwater surface water interface (GSI) criteria.

Refer to Table 1 for Soil Analytical Results, and Table 2 for Ground Water Analytical Results. Refer to Appendix C for copies of the laboratory analytical reports included in AKT Peerless' Phase II SI.

## 3.6 INTENDED HAZARDOUS SUBSTANCE AND PETROLEUM PRODUCT USE

The Submitter intends to demolish the existing structure at the subject property, and rebuild a multi-story office and commercial structure. The Submitter will not use, store, handle, or manage, at any time, hazardous substances or petroleum products during ownership of the subject property.

#### **4.0 KNOWN CONTAMINATION AND BASIS FOR FACILITY DETERMINATION**

As discussed in Section 3.5 of this report, a subsurface investigation has been performed at the subject property. The Phase II subsurface investigation by AKT Peerless was performed to evaluate the recognized environmental conditions identified in AKT Peerless' Phase I ESA (November 2007).

The following sections present (1) a summary of MDEQ criteria used to evaluate the subject property, (2) soil and groundwater analytical results, and (3) the basis for defining the subject property as a facility.

#### **4.1 MDEQ CRITERIA**

A *facility* is defined in Part 201 of the NREPA as “any area, place or property where a hazardous substance in excess of the concentrations which satisfy the requirements of section 20120a(1)(a) or (17) or the cleanup criteria for unrestricted residential use under part 213 has been released, deposited, disposed of, or otherwise comes to be located. *Facility* does not include any area, place, or property at which response activities have been completed which satisfy the cleanup criteria for the residential category provided for in section 20120a(1)(a) and (17) or at which corrective action has been completed under part 213 which satisfies the cleanup criteria for unrestricted residential use.” Therefore, laboratory analytical results were compared to Residential and Commercial I Generic Cleanup Criteria.

AKT Peerless' compared soil analytical results to the following MDEQ criteria: (1) Statewide Default Background Level (SDBLs), (2) Residential and Commercial I Drinking Water Protection (RDWP) Criteria, (3) Groundwater Surface Water Interface Protection (GSIP), (4) Groundwater Contact Protection (GCP) Criteria, (5) Residential and Commercial I Soil Direct Contact (RSDC) Criteria, and (6) Soil Volatilization to Indoor Air (SVII) Criteria.

AKT Peerless' also compared water analytical results to the following MDEQ criteria: (1) Residential and Commercial I Drinking Water (RDW) Criteria, (2) Groundwater Surface Water Interface (GSI) Criteria, (3) Groundwater Contact (GC) Criteria, and (4) Groundwater Volatilization to Indoor Air (GWVI) Criteria.



## 4.2 SITE GEOLOGY & SOIL CONTAMINATION ABOVE PART 201

During drilling activities, AKT Peerless encountered:

- **ASPHALT:** in all soil borings except B-3, measuring 2-3 inches thick. In borings B-2, B-5, and B-7, the asphalt was underlain by a sand/gravel base layer.
- **GRAVEL:** in B-3 from ground surface to approximately 6 inches bgs.
- **FILL:** found in all borings except B-3, from about 0.25-feet bgs. Fill material consisted of sandy clay with trace amounts of brick, foundry sand, and other debris. Fill extends to depths between 3.5 to 5 feet bgs. In boring B-2, a thick layer of newspaper was observed in the sample at about 3.5-feet bgs.
- **CLAY:** sandy or silty clay found in all borings beneath the fill material, to the termination depth of 20 feet bgs. The clay was generally moist and firm. Occasional layers of sand were noted at various depths inter-bedded with the clay.

Seven soil samples were collected as part of the Phase II investigation. Soil samples collected as part of AKT Peerless' Phase II investigations were compared to the Part 201 Residential and Commercial I Generic Cleanup Criteria. The table below provides a summary of target analytes found at the subject property above the Part 201 Residential and Commercial I criteria, the specific criteria exceeded by analyte, sample locations and the maximum concentration identified for that analyte:

**Summary of Soil Analytical Results**

Parameter (CAS Number)	Residential and Commercial I Criteria Exceeded	Sample Identification	Maximum Concentration (µg/Kg)
Chromium (18540299)	GSIP	B-2 (3.5-4.0') B-4 (2.0-3.0') B-5 (4.0-5.0') B-6 (3.0-4.0') B-7 (4.0-5.0')	14,000
Mercury (7439976)	RDWP	B-2 (3.5-4.0') B-4 (2.0-3.0') B-5 (4.0-5.0') B-6 (3.0-4.0')	320
	RDWP GSIP	B-7 (4.0-5.0')	3,600
Selenium (7782492)	GSIP	B-2 (3.5-4.0')	450
Silver (7440224)	GSIP	B-4 (2.0-3.0') B-5 (4.0-5.0')	140
2-Methylnaphthalene (91576)	RDWP	B-3 (13.5-14.5')	74,000
Naphthalene (91203)	GSIP	B-3 (13.5-14.5')	4,900

\*- Sample identification: B-# indicates soil boring and (##) indicates sample depth in feet.

Refer to Table 1 for a complete summary of soil analytical results for the subject property. Refer to Figure 3 for a Sample Location Map. Refer to Appendix C for laboratory analytical results included in AKT Peerless' Phase II SI.

#### 4.3 GROUNDWATER CONTAMINATION ABOVE PART 201

One groundwater sample was submitted as part of the Phase II Site Investigation. The groundwater sample collected was compared to the Part 201 Residential and Commercial I Generic Cleanup Criteria. The table below provides a summary of target analytes found at the subject property above the Part 201 Residential and Commercial I criteria, the specific criteria exceeded by analyte, sample locations and the maximum concentration identified for that analyte:

**Summary of Groundwater Analytical Results**

<b>Parameter (CAS Number)</b>	<b>Residential and Commercial I Criteria Exceeded</b>	<b>Sample Identification</b>	<b>Maximum Concentration (µg/L)</b>
Chromium (18540299)	GSI	FD (B-1 dup)	17
Lead (7439921)	RDW	B-1-1WS FD (B-1 dup)	250
Mercury (7439976)	GSI	FD (B-1 dup)	0.38
Silver (7440224)	GSI	FD (B-1 dup)	1.1

Refer to Table 2 for a complete summary of ground water analytical results for the subject property. Refer to Figure 3 for a Sample Location Map. Refer to Appendix C for laboratory analytical results from AKT Peerless' Phase II SI.

#### 4.4 BASIS FOR FACILITY DETERMINATION

Laboratory analytical results from samples collected at the subject property exhibited concentrations of the following target analytes exceeding current Part 201 Residential and Commercial I Generic Cleanup Criteria:

- The laboratory analytical results from soil samples collected by AKT Peerless at the subject property exhibited concentrations of chromium, mercury, selenium, silver, 2-methylnaphthalene, and naphthalene present in soil at concentrations exceeding current Part 201 Residential and Commercial I Generic Cleanup Criteria.
- The laboratory analytical results from groundwater samples collected by AKT Peerless at the subject property exhibited concentrations of chromium, lead, mercury, and silver present in groundwater at concentrations exceeding current Part 201 Residential and Commercial I Generic Cleanup Criteria.

Therefore, the property meets the definition of a “facility” as defined by Part 201 of NREPA, Michigan PA 451 of 1994, as amended.

#### **4.5 KNOWN ABANDONED OR DISCARDED CONTAINERS**

During AKT Peerless’ Phase I ESA, did not observe any drums or other abandoned containers. Several small containers were noted and inventoried by AKT Peerless during the Pre-Demolition Hazardous Materials Survey (March, 2008). Refer to the Pre-Demolition Hazardous Materials Survey report (under separate cover) for detailed information.

#### **5.0 LIKELIHOOD OF OTHER CONTAMINATION**

AKT Peerless did not identify any additional previous environmental assessment and subsurface investigation activities performed at the subject property. AKT is not aware of any contaminated areas beyond those identified in this report.

While all prudent and reasonable investigation has been performed on the subject property, no investigation can ensure all contamination was identified. Based on past use of the subject property and review of available information outlined in the previous Phase I ESA performed by AKT Peerless, site conditions appear to be adequately characterized for the purpose of this BEA.

#### **6.0 CONCLUSIONS**

Elle Enterprises, L.L.C. is submitting this BEA to the MDEQ RRD to qualify for an exemption from liability under Part 201 of the NREPA. Known contamination at the subject property includes the following target analytes exceeding current Part 201 Residential and Commercial I Generic Cleanup Criteria:

- Chromium, mercury, selenium, silver, 2-methylnaphthalene, and naphthalene are present in soil at concentrations exceeding MDEQ GRCC. Contaminant concentrations exceed the residential drinking water protection (RDWP), and/or groundwater surface water interface protection (GSIP) criteria.
- Chromium, lead, mercury, and silver are present in groundwater at concentrations exceeding MDEQ GRCC. Contaminant concentrations exceed the residential drinking water criteria (RDW), and/or groundwater surface water interface (GSI) criteria.

Based on the intended future use of the subject property, there will be no significant hazardous substance or petroleum use at the subject property. This stipulation is, therefore, the basis for being able to distinguish existing contamination from a new release.

## **7.0 DUE CARE RESPONSIBILITIES**

Section 20107a(1) states: “A person who owns or operates property that he or she has knowledge is a *facility* shall do all of the following with respect to hazardous substance at the *facility*:

1. Undertake measures as are necessary to prevent exacerbation of the existing contamination.
2. Exercise due care by undertaking response activity necessary to mitigate unacceptable exposure to hazardous substances, mitigate fire and explosion hazards due to hazardous substances, and allow for the intended use of the *facility* in a manner that protects the public health and safety.
3. Take reasonable precautions against the reasonably foreseeable acts or omissions of a third party and the consequences that foreseeably could result from those acts or omissions.

A Section 7a Compliance Analysis is being prepared to address exacerbation, due care, and reasonable precautions applicable for future redevelopment of this property. Refer to the Section 7a Compliance Analysis document (under separate cover) for detailed information.

## 8.0 REFERENCES

Listed below are documents utilized to aid in the completion of this BEA. Data presentation, summaries and conclusions presented in this BEA are general in nature and should not be considered apart from respective documents.

- “*Environmental Remediation*,” Part 201 of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.
- “*Instructions for Preparing and Disclosing Baseline Environmental Assessments and Section 7a Compliance Analyses to the Michigan Department of Environmental Quality and for Requesting Optional Determinations*,” dated March 11, 1999
- “*Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*,” American Society for Testing and Materials, Designation: E 1527.
- “*Standard Practice for Environmental Site Assessments: Phase II Environmental Site Assessment Process*,” ASTM Designation: E 1903-97.
- “*Standard Guide for Direct Push Soil Sampling for Environmental Site Characterizations*,” ASTM Designation: D 6282-98.
- “*Phase I Environmental Site Assessment – Former YMCA, 301 Lenawee Street, City of Lansing, Michigan*,” AKT Peerless Environmental Services, November 29, 2007
- “*Phase II Subsurface Investigation – Former YMCA Property, 301 W. Lenawee Street, Lansing, Michigan*” AKT Peerless Environmental Services, February 28, 2008

## 9.0 GENERAL COMMENTS

In performing its inspection, AKT Peerless has used reasonable care and has performed its work in keeping with industry standards and standard agency procedures as appropriate. AKT Peerless can offer no assurances and assumes no responsibility for site conditions or activities outside the limited scope of the inquiry requested by the client. There can be no assurance, and AKT Peerless offers no assurance, that site conditions do not exist or could not exist in the future which could lead to liability in connection with the subject property. Accordingly, AKT Peerless has analyzed the information obtained in its limited investigation in keeping with existing environmental standards and enforcement practices, but cannot accurately predict what actions any given agency may take presently or what standards and practices may apply to the subject property in the future.


Although reasonable due diligence has been exercised in the design and conduct of this study, it must be noted that the results of this investigation do not provide sufficient information to warranty that no environmental risks are associated with well disguised or illegal chemical and/or waste management activities.

This report has been prepared for the sole use of Elle Enterprises, LLC. This report and the findings contained herein shall not be relied upon by any third party, in whole or in part, without the prior written consent of AKT Peerless. This report and the findings contained herein shall not be disclosed, disseminated or conveyed to any third party, in whole or in part, except as directed by Elle Enterprises, LLC, or as required by law or regulation.

This report has been prepared by:  
AKT Peerless Environmental Services



Jennifer E. Bowyer, P.E.  
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March 10, 2008